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Ornamental Fixtures.

IT has not conduced to the understanding of the law, in regard to the respective rights of landlord and tenant, or of tenant for life and remainder-man, as to things attached to the freehold, that the title "fixtures" has been given to things that are removable. At first sight the word would seem to imply that it was meant to cover things which must remain fast to a building or to the ground, whereas it is exactly the contrary. The old rule of law was very rigid: whatever was attached to the ground and in that sense to a building, became part of it, and so became the property of the freeholder. But that rule has, under the influence of modern changes, been gradually relaxed, and there are now two great exceptions to it—what are called trade fixtures and ornamental fixtures. We are not now concerned with the former class. The second is, having regard to modern decoration, more and more important, and it includes articles which are becoming and suitable "for the more convenient or luxurious occupation of houses." The way in which the law has grown more elastic on the subject is well exemplified by the statement of the fact that in 1705 it was judicially decided that "pictures and glasses put up instead of wainscot, or where otherwise wainscot would have been put, shall go to the heir and not the executor"—in other words, were not removable by a tenant. No one would now for a moment contend that pictures and pier glasses, however firmly fixed to a wall, became the property of the freeholder. But since the decision of the Court of Appeal in the now celebrated Luton Hoo tapestry case, it is clear that, in order to say if a thing is an ornamental fixture, there is nothing more to be done than to consider in the first place if the thing is for the convenience or the ornamentation of a house. The amount of firmness with which it is fixed to a wall becomes immaterial if the thing is originally a separate article, intended for use by itself. Of course the method of fixing must be carefully considered, in order to be sure that the article is such a separate thing. "There might be such an incorporation of the chattel with the freehold that it would be impossible to deny that the chattel had become part of the freehold, and absolutely impossible to admit the exception. Therefore the quantum of fixture is important. One must ask oneself, is there any more fixing than was necessary for the enjoyment of the chattel as such? If you fix a heavy object, such as a heavy ormolu clock, to the wall of a room, you may, in order to make it safe, have to use very substantial fixings. You may have to drive an iron bar right through the walls to rivet it at the back. You might have to employ a mode of fixing which in many cases would be conclusive of an incorporation of the chattel into the freehold. But the moment you come to the conclusion that the mode of fixing which was employed was absolutely necessary for the enjoyment of the chattel the inference does not arise."

These views of Lord Justice Vaughan Williams will, we think, enable any person, be he architect or builder, to understand the question without difficulty. In the first instance, however, one must consider what the article is which is so affixed; but, as already stated, any ornamental object which is complete in itself, seems to be such an ornamental fixture as belongs to a tenant. "If," said Lord Justice Rigby, "the exception applies to such a thing as a chimney-glass, I cannot see why it does not apply generally to all articles affixed for the purpose of enjoyment and ornamentation." This dictum is very broad, and it serves to make the Luton Hoo case one which is a kind of Magna Charta for the tenant, in regard, at any rate, to ornamental fixtures. The effect of the decision is most important and far-reaching, because it should be noted that, on two previous occasions, tapestries have been held to belong to the house. In one case—Norton *v.* Dashwood, decided in 1896—the tapestries had for a hundred years belonged to and formed part of the decoration of a mansion house. It is, clear, however, that were a similar case to arise again—with the special circumstances which characterised it—the decision would be different. A still earlier decision by Lord Romilly was distinctly declared to be erroneous. This fact shows how wide is the present judgment, more especially when it is borne in mind that Lord Justice Rigby stated that no doubt these tapestries "were affixed in such a way as, in earlier days, would have been held to make them inseparable parts of the wall." In other words, the modern judicial view of this question is quite different, quite opposed to that of half a century ago.

Certain articles have, by usage and legal decisions, become clearly defined as among those which can be removed by a tenant, however firmly they are affixed to a building. But the recent development of the law has given so wide a definition to the words "ornamental fixtures," that practically everything which is not intended to become a permanent and integral part of a building may be removed by a tenant either for years or for life. Thus a much greater latitude is given to expenditure by those who are not the permanent owners of a building, and it may be said that under the present condition of the law a tenancy is more desirable than was formerly the case.

The words with which Lord Justice Rigby concluded his judgment are, in fact, sufficient to give a tenant for years or for life, or the executor of either, or their advisers, perfect freedom of action. The case, said the Judge, "falls within the proposition that articles set up for the purpose of decoration or ornamentation are excepted from the rule that things fixed to the freehold belong to the owner of the freehold." Care, of course—as he had pointed out—must be exercised in the consideration of the word "articles," but subject to this proviso,

nothing can be broader than the above proposition.

A small but practical point of some importance was also decided in the Luton Hoo case, viz., that though the tenant should pay for any damage done to the walls by taking down his fixtures, he has not to pay for redecorating the room. "It is not," said the Court, "waste to remove one set of purely decorative ornaments to make room for another." We understand that to mean that a tenant for life or a tenant for years—when there is no term to the contrary in his agreement—may, for example, take off a wall paper, substitute tapestry, and if he likes remove it and leave the wall without either tapestry or paper.

FRENCH ART IN 1901.*

IN landscape-painting there are still things to be seen at the Salon which make all English landscape painting of the day seem tame. M. Didier-Pouget's two works hang in the great gallery; the largest, "Ajoncs et Bruyères, Village du Pin," is quite astonishing in its power in the foreground, and very fine in the distance, but this remarkable painter is getting too much into the habit of repeating his main effects—a hill and shrub foreground which looks as if you could walk on it, a misty valley in the middle distance, a sun-lighted plateau beyond; the materials of a most effective scene, but they have been repeated two or three times in a manner that makes one suspect that the painter puts into the scene what he wants rather than merely what is there. M. Quignon, who at his best is (or was) a painter of a broader and finer style than his rival, has only two small landscapes this year, not showing anything like his best powers. M. Simonnet is in danger, in his "Coucher de Soleil," of a little overdoing his rich and solemn effects of woods and sunset light. But the two landscapes of the year are those of M. Harpignies, both scenes in which glimpses of distance are seen through a foreground of forest trees. The whole history of landscape-painting can hardly show a style equal to that of this great artist; he possesses the finest qualities of Constable with a certain refinement of execution added to them; the foliage of the trees is so freely handled that it seems really to *grow* rather than to be painted. A fine picture by M. Calvé, "La Lagune d'Ous," is a good example of a type of landscape in which French painters excel, and which consists in making a picture out of the simplest and most unpromising materials—in this case a pond in the middle of a waste moor with low hills in the background; but it is a picture, most complete in its way. French landscape painters undoubtedly gain something by the large scale on which many of them paint, and which, as in this case, gives more scope for effect than a smaller canvas; but the more confined spaces of the Royal Academy would not admit of this in England, even if our artists wished to paint landscape on a larger scale. There are, however, a good many smaller landscapes, more than can be mentioned here, of very fine quality for breadth of style and power of atmospheric effect; among these smaller ones an English painter, Mr. Alfred East, takes an exceedingly good place with his "L'Etang Mystérieux," a better picture than any that he has in London; he was quite right, however, to send it to Paris, where its style will be much better appreciated. Another English painter, Mr. R. W. Allan, has the honour of a place in the great gallery, where his "Une Porte de la Mer" looks certainly a great deal smaller than it did in the Dudley Gallery, but has its effect nevertheless. Seapieces as usual are bad; M. Palézieux, in "Après la Tempête," endeavours to impress us by vast size, but it will not do; his waves are none the better for being big.

The New Salon strikes us as being really on its last legs. Of course the death of Puvis de Chavannes was a terrible loss to it; and their chief support next to him, though in such a very different way, M. Carolus-Duran, exhibits only one portrait, and that not quite of his best, though certainly a fine one. Besides that, he contributes only landscapes; and though it is interesting to see how an artist, whom we know chiefly as a fashionable portrait-painter, treats landscapes, it cannot be pretended that M. Carolus-Duran takes an important place as a landscape-painter. He would serve the New Salon better by sending them the class of picture for which he is famous, and not his experiments in another walk of art. The death of Cazin, who really was a fine landscape painter, is another serious loss; and other painters who have usually been among the most original contributors—MM. La Touche and Carrière in figure subjects, and M. Courtens in landscape, are also not at their best. It is true that there are a good many small and unpretending pictures, landscapes and others, which are pleasing and which would be almost crushed in the other exhibition, but the difference is that the Old Salon contains a good many really fine and important pictures, and the New Salon contains none; there is not a work of the first order of interest to be found there; and even the pretence at greater refinement than the Old Salon must now be abandoned, for the management have evidently been obliged to take what they could to fill their walls, and there are things more vulgar and more artistically coarse than anything to be found in the Old Salon—which is saying a great deal. In fact, year by year it becomes more evident that this split in the camp is an artistic mistake, and that the two societies had much better join hands and only try to fill one suite of galleries, since it is obvious that they cannot fill two in a satisfactory manner.

The glory of the New Salon, we presume, consists in retaining possession of M. Rodin, the sculptor whom the æsthetic public now gape after with such an exaggerated adulation. He exhibits a nude statue of Victor Hugo, or rather, half a nude statue, as the whole of the right side below the waist, and the right leg, is left unfinished, *en bloc*, for M. Rodin cannot condescend to finish anything now; it is honour enough for the public to be permitted to see his unfinished works, with a head or a limb sticking out of a mass of rough marble. The head in this case is fine, but that is no excuse for this absurd pretence that works in sculpture are better unfinished; the whole proceeding is merely playing upon the folly of the public. The sculpture generally at the New Salon is not very important, but there is an effective monumental statue of Daudet by M. Saint-Marceaux, who puts an apologetic parenthesis into the catalogue to the effect that it is "unfinished," which might have been more reasonably applied to the Victor Hugo work, which is much more unfinished.

Sculpture at the Old Salon shows the usual tremendous crowd of works, and the usual (of late years) proportion o things which seem to aim at compelling public notice by sensational attitudes and sensational subjects totally alien from the true genius and the proper ends of the art of sculpture. From this crowd, nevertheless, are to be picked out many good and some beautiful works. Thus, M. Vital-Cornu's female figure, "La Nature s'éveille," is one of the most perfect and perfectly-modelled figures it would be possible to see; from whatever point of view you take it, it is fine. M. J. Boucher repeats in marble his fine and poetic conception shown in plaster in a former Salon, "Antique et Moderne," one of the most intellectual productions of recent sculpture.* M. Cordonnier's "Sainte Famille," a group in grey marble, is a fine piece of religious art. M. Gasq's monument to a bishop, who kneels on a sarcophagus beside which is a draped figure representing "Amenitas," is admirable in itself, but the merit of the accompanying figure and its admirably designed drapery is really due to Chapu, from whom it is a palpable imitation. M. Gaudissard's "La Vie de la Maison" is an interesting bas-relief for the decoration of a private house, consisting of figures symbolising the occupations of various hours—reading, music, needlework, meals, sleep, &c.; the names are not appended, but the design tells its own story. Among portrait statues M. Gérôme has a gilt equestrian statuette of "Washington," not particularly remarkable except in being his work; Mr. Goscombe John a colossal statue called in the catalogue "Portrait du lord duc Devonshire," an effective work of its kind (it is catalogued, by the way, under the name of "Goscombe" instead of "John"); M. Jean Hugues a seated statue of Pasteur; and M. Marqueste another of Victor Hugo, of which one must confess that the head looks rather prosaic in comparison with M. Rodin's head, but presumably this is really a likeness, and the other is M. Rodin's impression of what Victor Hugo ought to have looked like. Among monuments a fine and important one is that to Jean Macé, by M. Massoule. We presume M. Macé did something for juvenile education; the monument consists of a large stele crowned by a female figure holding high aloft an open book; on the face of the stele is the medallion portrait of Macé (a system which escapes the difficulty of a realistic full-length statue); at the foot of the stele are pretty figures of a boy and girl on the way to school, applauded and encouraged by a draped female who sits at one side. The whole is a good typical example of a kind of monument in which French sculptors excel. Among ideal works which are worth special mention are M. Manguet's "Bacchante invoking the god Pan," whose sneering head is fixed on a term—a kind of subject the

* Concluded from p. 481 *ante*.

* The plaster version was illustrated in the *Builder* for July 15, 1899.

French are very fond of; M. Marioton's pretty figure, "Méditation," standing with her feet crossed; M. Gustave Michel's fine and pathetic figure of an aged man—"Au Soir de la Vie"; M. Hector Lemaire's "L'Offrande;" and M. Coutheillas' beautifully modelled recumbent figure, "La Fin de la Cigale." We have seen, however, better sculpture years at the Salon than the present one.

A word on two new architectural works, already frequently mentioned in our Paris correspondent's communications. Only a few minutes' walk from the Palais de l'Art is the memorial chapel on the site of the fire in Rue Jean Goujon, a visit to which seemed a matter of course while one was in the neighbourhood. It is characteristic of the energy of the French in these matters, and their artistic enthusiasm, that they should think nothing less would suffice for such a memorial than a fine stone church filled with sculpture and decorative materials, erected at a cost of 40,000*l.* exclusive of the site; while in London an obelisk with an inscription would have been deemed sufficient. The building, of which M. Guilbert is the architect, was illustrated in elevation in the *Builder* for July 30, 1898. The effect of the actual building is still better than the illustration conveyed; the interior circular church is only spoiled somewhat, to our thinking, by the colossal gilt figure of the Virgin, the "Mater Consolatrix," in front of the altar; a pathetic statue in itself, but far too large for the building, and dwarfing the architecture. This is a kind of religious statue, however, which we believe appeals to the feelings of devout Catholics, and is to be judged from a religious rather than an artistic point of view. Behind the church is a cloister divided into bays each of which is appropriated to a special monument to the friends of those who wished or could afford to have such a monument; the lower part is in marble, with an inscription, perhaps a figure, or a medallion portrait of the deceased; the upper portion in each case is occupied by a silvered metal relief from New Testament history, in a panel; these panels are all alike, the lower portions of the monuments vary in treatment. They are nearly all to titled people, including that brave lady the Duchesse d'Alençon, who quietly died in the fire, refusing to make any effort to save herself at the expense of other persons. Her monument is the central one, with her medallion portrait over it. The whole thing is not only artistically impressive, but in the highest degree pathetic.

Another evidence of the architectural inventiveness and energy of the French spirit meets the visitor in walking up the left bank of the river from the Pont de la Concorde. Is this a new palace that rears its great mass along the road bordering the quay, this vast façade in all the bloom of new bright stonework, and sumptuously decorated with sculpture and carving? Not at all; this is the new railway station of the Orleans line. Entering the station we find, instead of the usual engineers' glass and tie-rod roof, a great semi-circular barrel vault decorated in coffers, with skylights interposed at intervals, following the curve of the roof. Exterior and interior are alike architecturally impressive. Are railway companies so devoted to art in France? Not exactly, explained a Frenchman to whom we commented on this brilliant display. It is the City authority which is at the bottom of it. The railway company has to buy the land from the Municipality, and the Municipality will only sell land in such a position with the condition that something is erected on it which shall be an ornament to the city. What a lesson to London, where money considerations alone rule in such a case; where any railway company may build the ugliest erection it pleases so long as it has paid the price of the land; where the City authorities themselves are bent to spoil their grandest bridge under a pretence of needing increased accommodation; where the County Council resent the proposal to introduce architectural design into a new bridge. Truly, "they manage these matters better in France."

NOTES.

The Origin of Egyptian Architecture.

PROFESSOR FLINDERS PETRIE'S lecture on this subject at the Institute of Architects was not only full of interesting matter, but was a model of clearness and logical arrangement. He certainly brought out in a very strong light the manner in which features of Egyptian architecture were derived from nature and from very primitive construction in perishable materials, but he seemed to be rather too much disposed to think that the interest of the architecture diminished as it receded further from the direct imitation of nature and of primitive construction; whereas the real, the æsthetic interest of architecture commences when these natural origins are forgotten. The remark of Sir Martin Conway, that it was interesting to see the same thing going on now, when we were imitating in iron the forms of stone columnar architecture, was still less to the point. The cases are not parallel in the least. All architecture goes back ultimately to the hut or the wigwam; those who first evolved an architecture from these primitive sources were doing the best they could in what was then an entirely new field of human invention; but that is no excuse for modern architects, whose power of æsthetic reasoning ought to be fully developed, imitating in one material the forms proper to another. That is not doing their best with the materials in their hands; it is merely the result of intellectual indolence and want of thought.

Liverpool Cathedral.

WE published a letter last week from a correspondent who complained that nothing seemed to be promised as to the architect or the architecture of the proposed cathedral at Liverpool, if erected. We have since received a cutting from a Liverpool paper describing a meeting held a few days ago, under the presidency of Sir W. Forwood, to discuss the question. Judging from this report, the whole question was discussed solely in regard to its financial side, and the difficulty of raising the necessary funds, and the importance of having a widely extended area of subscribers. Not a word appears to have been said as to the architectural aspect of the matter, but it is announced that steps are to be taken to call a public meeting to consider the subject, and perhaps on that occasion some one will have the courage to suggest that there are other things to be considered in connexion with a cathedral project besides paying for it.

Abbey Dore Church.

A COMMITTEE has been formed, under the presidency of the Bishop of Hereford, for raising a sum of 6,000*l.* for necessary repairs to this fine church. Mr. R. W. Paul, who has given special attention to this building and made a good many new discoveries in regard to it, is employed as superintending architect, and under his direction we may be quite sure that the work will be confined to *bonâ-fide* repair, and that no restoration, in the objectionable sense of the word, will be attempted. From Mr. Paul's detailed Report to the Provisional Committee it appears that though the main walls are sound for the most part, some portions of the building are in a dangerous state. The upper part of the tower is seriously out of position and requires immediate attention; the plaster ceiling is constantly falling, and the floor of the church is in a very damp state, and unhealthy owing to the condition of the vaults. Much of the glazing requires repair, and the roof, covered with old stone tiles, requires to be relaid, and boarding and felt provided. New choir stalls and other fittings are also required to put the church in a proper condition for service. It is estimated that 6,000*l.* will be required for the work contemplated. Abbey Dore was illustrated in our issue of April 4, 1896, in the series of "Abbeys of Great Britain," from drawings made by Mr. Paul.

British Fire Prevention Committee.

THE new testing station of the British Fire Prevention Committee, which was put in use for the first time on Wednesday last, is conveniently situated close to Royal Oak Station on the District Railway, so that it is easier of access than the former one. As before, the Committee have secured an old dwelling-house for offices, and have erected their testing-houses in the grounds. The houses are on the same model as before, but one of them is a good deal larger than any of those on the old ground, for testing larger areas of floor, &c. The principal test on Wednesday took place in this house, the subject of test being a portion of fireproof floor 22 ft. in length (the full length of the testing house), made by the Banks' Fireproof Construction Syndicate, and consisting of rolled beams embedded in concrete, and carrying an armed plaster ceiling underneath supported by metal stirrups from the beams. The test was still in progress when we left; the particulars will no doubt reach us in due time in the usual formal report of the committee. The Syndicate had asked for a three-hour test for this floor; and it appears that there is now a kind of rivalry among fireproof constructors for length of test. This must have a stimulating influence on the improvement of fireproof construction. A model of the testing houses and plant was to be seen in the offices, prepared to be sent to a fire-prevention exhibition at Berlin.

Road Maintenance.

THE seventh annual report of the State Commissioner of Public Roads of New Jersey contains voluminous tables arranged so as to show the characteristics of each piece of road made during the year 1900, the reduction in grade made at the time of improvement, the cost of the stone at the quarry,

and the expense of delivering it on the road. Maintenance of the New Jersey roads is made the subject of a special report by the State Road Supervisor, who advocates a system of continuous repairs according to methods which he proceeds to describe in detail. The figures contained in the reports permit of interesting comparisons being made with those of the Massachusetts Highway Commissioners for the same year. In both these States considerable signs of improvement are evidenced, and practice in the two is becoming more uniform, although local conditions necessarily cause some essential differences. In one respect, however, the states are thoroughly in accord, for the highways are being steadily improved in quality. Similar developments are to be found in this country, for, speaking generally, our local authorities are fully alive to the benefits to be derived from good roads. Much remains to be done in the direction of securing uniformity of practice in different parts of the same counties, as those who have opportunities for inquiry know full well. But, taking them all round, country highways are fairly satisfactory. We should very much like to be in a position to say the same of London streets and roads. Practice is extremely varied, and uniformity is only evidenced in the execrable character of all thoroughfares that have seen any considerable amount of traffic. Rugged macadam, undulating asphalt, and bumpy wood paving, are in evidence everywhere. Some allowance must of course be made for the ruinous effects of heavy traffic, but it ought not to be beyond the resources of modern engineers to construct a roadway of far more uniform resistance than most of those now existing. In some parts of the metropolis the roads are reasonably good; in others, where no more traffic is experienced, they are atrociously bad. Perhaps the worst carriageways of all are those in the quietest and wealthiest parts of the West End, and in the Royal parks where no heavy traffic is allowed. To those responsible for such eccentricities we commend a perusal of the reports to which attention has been directed.

The Electric Eye.

IN his recent Friday evening discourse at the Royal Institution Dr. Chunder Bose gave a *résumé* of his experiments proving that there was a regular law underlying certain phenomena exhibited by both organic and inorganic matter. In papers published in the Proceedings of the Royal Society last year Dr. Bose described his discovery of how metals were sensitive to electric radiation, or possessed, as he calls it, "electric touch"—the resistance of some increases when electric radiation falls on them, whilst in other cases the resistance is diminished. In his lecture Dr. Bose passed from the domain of physics into the domain of physiology, and elaborated the analogies between nerve and muscle diagrams and the diagrams got by stimulating inorganic matter mechanically or electrically. For example, he showed, by means of a model apparatus, how the response curves got by dosing a liquid connecting two metallic wires with various "drugs" gave phenomena analogous to the effects produced by these drugs on living tissue. Some produced stimulation, others depression, and "poisons," like corrosive sublimate, killed the electric action altogether. He showed a wonderful model of an electric eye, which was sensitive to every kind of radiation. It acts according to physical laws which Dr. Bose has discovered, and seems to work in the same way as the living eye works when it sends an impulse to the brain on being exposed to light. He seems to have discovered principles which explain perfectly certain phenomena which have been known for many years to physiologists. We are glad to hear that he has been given leave by the Indian Government to stay in England to complete his investigations. The scientific world is already deeply indebted to him, and it seems to us that the Bose coherer may have important electrical applications. The drawback to the Marconi and other coherers in use in wireless telegraphy is that they are not self-recovering, but need troublesome and destructive tapping devices. A coherer based on the "Bose effect" would be completely self-recovering and would enormously simplify the required mechanism.

The Old Red Hall, Bourne, Lincolnshire.

THE project is again revived of pulling down the Old Red Hall, at Bourne, Lincolnshire. Its demolition was proposed ten years ago by the Great Northern Railway Company for the construction of their line from Bourne to Saxby, but the scheme was warmly opposed, and the house was spared for a while, being reserved as a residence for the railway station-master, and for purposes of the station. The house is one of the finest specimens of a red brick early sixteenth century mansion of which the county can boast, and formed during a long period the home of the Digby family, including Sir J. Everard Digby, and Sir John Thimbelby, who were implicated in the Catholic rising that followed upon the Reformation. The house, having a gable roof and stone mullioned windows, with a richly panelled and carved interior, and a fine oaken staircase, and standing at the southern entrance into the town, has extensive grounds, and is partly surrounded with water.

Principles of Stage Scenery.

THIS subject was considered in a paper by Mr. Percy Fitzgerald, followed by a discussion, which appears in a recent issue of the Society of Arts *Journal*. Mr. Fitzgerald's main point (which we have met with before) is that "the scene" is the centre in which the action goes on, not the whole stage space; that in Garrick's time the stage was lighted by four large chandeliers hung over the actors, which furnished a central zone of light within which the actors kept, and the surrounding accompaniments were left in comparative obscurity. We should say that such an arrangement would very much hamper the actors in freedom of movement, and that footlights are a most useful addition both in generally lighting the stage, and in partially screening off the audience from the view and the consciousness of the actors. With those who urge that the acting should be the real aim and end of theatrical production we are entirely in sympathy, and it is a fact that the public go to see some plays now more for the spectacle than the acting. But we fail to see any reason for thinking that finished and realistic scenic accompaniments are any bar to good acting; or that, the acting being good, the effect is not assisted by a well-mounted scene. In plays of modern life, especially, it is important that a large country house, for instance, if the action is supposed to take place there, should be represented by an interior that we might expect to find in such a house, not by a room looking as if it belonged to a seaside lodging. We may like a fine stage effect without being in any way less exacting in regard to the acting; many persons (the present writer included) who go to see a modern spectacular play often come away vexed and disappointed with inferior acting; but there is no reason why the acting should be inferior because the scenery is fine; and where the acting is good, scenic effect helps it. One point we do fully agree with in Mr. Fitzgerald's paper is in regard to the absurd neglect of scale constantly seen in theatrical erections, where the vicar's house, as he says, is only a few feet higher than the vicar, and a whole cathedral is shown no larger than Bonchurch church. The scene in such a case should show part of the building on the right scale, and so designed as to leave you to infer the existence of the portion which cannot be comprised within the stage focus.

Art in Medals and Coins.

THOSE who are interested in seeing the artistic standard of our coinage and commemorative medals improved, should feel grateful to Sir Charles Dilke for pointedly calling attention to this subject in Parliament a few days ago. He asked on what principle the artistic work of the Mint was done, and observed that it was beginning to be realised that the medallist's was one of the highest forms of art; that in foreign countries, especially in France, this art had been revived and carried to a high standard of excellence, and that we were conspicuously behind in this respect. When we consider that in France medals and coins are in the hands of such artists as M. Chaplain and M. Roty, and that in England no one usually cares to ask how or by whom they are designed, one must admit that Sir C. Dilke's protest was not uncalled for, and it is to be hoped that it may not be without some result.

ARCHITECTURE AT THE ROYAL ACADEMY.—II.

IN continuing our comments on some of the architectural drawings at the Royal Academy, we may perhaps in the first instance notice those of the church designs, not already noticed, which present anything for special remark. The first in order of hanging is Mr. Marshall Mackenzie's "Greyfriars Church, Aberdeen," (1,531) a pen drawing of a western tower with a slender crocketted spire rising from the centre of it, behind the parapet; a treatment rather more suitable to a timber spirelet than to one which appears to be, as far as one can judge from the drawing, of the same material as the tower. A stone spire seems to demand a visible connexion with or growing out from the masonic design of the tower. The general style of the design is a good deal similar to the same architect's fine work in the additions to the Marischal College, and is probably intended for the same material—granite. Another Scottish church is Mr. Stevenson's "New Church at Stirling" (1,539) for the Free Church of Scotland. This is an exceedingly solid piece of building, on the tower of which the architect has again introduced the "crown" modelled on that of St. Giles, Edinburgh, as he did in a former church. The meeting hall planned in connexion with the church is placed at a slightly oblique angle with the main building, probably from some

unavoidable requirement of the site, and certainly with no injury to the effect. There is a general aspect of massiveness and simplicity about the whole treatment of the church which is satisfactory.

Mr. W. D. Caröe is a large exhibitor in the way of church architecture. His Church and Rectory at Stoke Damerall is shown in an exterior perspective (1,541) with an interior view of the church (1,543): the latter is original and characteristic in treatment; the arch mouldings spring from the piers without the intervention of caps; the roof is carried by what may be called stone principals—stone pointed arches over each pier; the wooden roof between these is also in a pointed arch section, but not concentric with the stone arches, although not differing much from them in line. This seems a mistake; it gives the idea of their having been intended to be concentric and being accidentally set out wrong; it seems to us that in such a case the timber roof should either be decidedly different in section from the stone arches, or should be on the same sectional line: one or the other. This is a church with three complete aisles and two narrow side-aisles for passage; it is the passage-aisle device applied on each side of a complete nave and aisles plan, instead of reducing the church to a nave only. There are a good many nice points in the exterior design; the contrast between the plain and bold treatment of the lower part of the tower and the enriched upper story; the square turrets flanking the east end and finishing with a group of niches and figures, two on each face; and the exterior treatment of the buttresses over the passage-aisles, which is very characteristic. The east end of the church seems a little too much cut up, and might have been simplified with advantage, and we do not for our own part, like the effect of the oversailing pinnacles at the angles of the tower, rising from gargoyles' backs; of course it is a detail indigenous to that part of the country, and to be seen in old churches, but is it worth imitating? It produces a bad outline at the finish of the tower, and looks rather gimcrack also. High Wycombe Church (1,547), by the same architect, is illustrated in this issue, and under the head of "Illustrations" the reader will find the architect's description, and the reason for the peculiar treatment of the east end. The "Proposed new chapel &c. to the Bishop's Palace, Liverpool," (1,546), also by Mr. Caröe, is illustrated in a frame of drawings; the additions, distinguished from the existing portion on the plan, consist of a long corridor wing with various subsidiary rooms, terminating in the chapel turned round again at right angles; this is a quiet piece of domestic Gothic; the large traceried staircase window adjoining the chapel is ecclesiastical in character to suit its neighbourhood (it looks a little as if the chapel extended to the outer wall and this were its west window). In the interior view of the chapel stone arched principals are again shown, but this time in a much more satisfactory manner, as they are totally distinct in section from the ceiling; the stone arch is a low pointed one with open tracery in the spandrels, and coming well down on to the walls; the ceiling is a flat segmental arch, not quarrelling in any way with the line of the stone arches; the effect of this is very satisfactory.

Mr. E. B. Lamb's small drawing for "A Private Chapel in a Nobleman's Park" (1,556) shows a pretty design, but to give a chapel of that kind a picturesque or "rural" character is we think a mistake. A park is more or less artificial scenery, and we should expect to find a chapel in a nobleman's park marked by a somewhat classic architectural character, rather than what is shown here. Mr. Watson's "St. Peter's, Cricklewood" (1,557) is a pretty little drawing of a country church. Mr. J. J. Cress well exhibits an elaborate tinted perspective drawing of the interior of a design for a stone vaulted church; a very good drawing, showing a vault of the type which was the precursor of the fan vault, *i.e.*, a many-panelled vault with a severy square on plan; we can hardly think this, however, other than an anachronism as the roofing of a modern church; and as a matter of proportion, the vault seems unduly lofty in comparison with the substructure. The "Church of St. Mary, Barry Dock" (1,628), by Mr. G. E. Halliday, and that of "St. Peter's, Oystermouth" (1,643), by Mr. E. Bruce Vaughan, are what we should call highly respectable designs in modern Gothic, not presenting anything of special interest in character. Mr. F. L. Pearson's "St. Matthew's Church, Auckland, N.Z." (1,669) is shown in a large and fine perspective drawing without any plan; it has very much the character of some of his father's churches, and indeed reminds us a good deal of the late Mr. Pearson's large church in the outskirts of Birmingham — we forget the name of the district. Mr. Fellowes Prynne's "Design for Church, Lower Sydenham" (1,689), is shown in a small very highly finished watercolour drawing, but again no plan; what is shown is apparently the west end; a brick church with stone bands and dressings, the façade flanked by large and bold octagonal turrets, kept plain below and with an enriched upper story and cupola roofs; in the lower portion a wall stretching between these turrets apparently forms a narthex. But this is just the kind of drawing which should have had a plan to explain it.

Mr. Lamb's "Design for a National Monument to British Heroes" (1,664) is in some respects so much like a church that it may be classed with them. It is a fine conception, which would have been worth illustrating in a larger and more finished drawing. It is a design on a square plan with a lofty central tower and spire, and octagonal turrets at the angles, ending in spirelets; the whole making a pyramidal composition, with a kind of state or processional road up to the main entrance. The detail is Gothic. With church architecture we may class also Mr. Skipworth's charming drawing of a "Churchyard Cross, Erected at Leasingham, near Sleaford" (1,691). The cross, which takes the form of a crucifix, is treated with great originality and refinement of detail; the remainder of the design is very simple, but in excellent proportion and balance of parts.

From the churches we may proceed to notice some of the designs in public and street architecture not before mentioned. Mr. Leonard Stokes's "Central Boys School, Oxford" (1,529), is exceedingly picturesque, with its two stone bays in the centre of the front, and the entrance between them contrasting with the simpler treatment of the remainder of the exterior. The plan, however, is the most interesting feature; it shows a central hall which may be said to consist of a circle inscribed in a triangle, the angles of the triangle forming bays opening out of the circle. The class-rooms, &c., open out of this hall. There is some question, however, as to the lighting of these class-rooms; the two sets face opposite ways, one with east light, the other with west; the former is all right, the latter is not so good, though better than south. It is not obvious how the centre room on the right of the plan is lighted at all; there is no window shown. But this is a very interesting and original plan. Mr. Prior's "New Medical Laboratories, Netley" (1,542) reminds one somehow of the bottom of Essex-street, Strand, with its square mass and large pilasters, but there is a bold contrast given by the rusticated basement with its prison-like round-headed windows, and the light colonnaded open corridor adjoining; it is a very characteristic bit of building shown in a very nice shaded drawing; but it should have had a plan to explain it. Mr. G. C. Horsley, in the drawing of his "St. Paul's School for Girls, Hammersmith" (1,550), shows a plan but no compass, so that we can form no opinion as to the aspect of the class-rooms, which face opposite ways; and aspect is so important in regard to class-rooms that information on this point should never be omitted; the suitability of the plan turns on that more than on any other single thing. The treatment of the centre and wing fronts, with their sculptured panels, is bold and effective in a broad and simple manner; but surely the windows in the portion between these, like ordinary speculating builders house windows, are rather unnecessarily commonplace.

The recent competition for dock offices at Swansea is illustrated by two designs, that by Messrs. Mills & Oldham (1,552-53), and that by Mr. E. Hazell (1,554). The coloured elevation of the former is a very nice bit of work; the building is treated with a ground story of rusticated masonry, and an upper story of brick with stone dressings and with a stone carved shield and ornaments on the upper portion of each pier between the windows. The objectionable feature is the piece of plain brick wall above part of the cornice, which comes in clumsily, and spoils the effect of the whole. No plan is given either with this design or Mr. Hazell's, the latter a suitable and refined design for the most part, but the corbels under the large projecting angle-turret are much too weak. Mr. Doughty's "The Borough Club, Nottingham" (1,551), is a pretty bit of street architecture, decorated with carved panels, and shown in a pretty drawing.

Mr. Rupert Savage's "Assembly Hall, Belfast" (1,572), is a larger and more important building, of which the plan is shown, a good one in the main, but the corridor running parallel with the entrance part must be rather deficient in light. The general style may be described as Domestic Gothic; the best point in it is the bold treatment of the masses of wall on each side of the entrance; but as a whole the design is consistent and suitable. Messrs. Bradshaw & Gass's "Thomasson Reading-room, Bolton" (1,575) is a pleasing building of its class, and has the merit of having a plan with it.

Mr. Emerson's "Hamilton House" (1,582) is the building which was illustrated in our issue of July 22, 1899. Beneath it is his larger drawing, in colour and very well executed, of the "Royal Caledonian Orphan Asylum, Bushey" (1,584). This again, like so many other drawings in the room, is merely a picture of a building in which plan is of paramount importance, and one can form no idea of its value apart from that. The building is a pleasing looking one as a whole, but we do not like the detail very much.

Messrs. Young & Hall's "New Premises for the Express Dairy Company," on Ludgate-hill (1,590), is a pretty drawing of a street front with a good deal of character, but does not the arch over the balcony level look a little too heavy for the rest of the design? Messrs. Wimperis & East's "Rebuilding of Reynolds's House, Leicester-square" (1,589) looks very well in itself, but we should certainly have preferred to have seen it carried out in a style more in keeping with the memories of Reynolds and his day and taste; no one who was told that Reynolds's house in Leicester-square still existed would ever think of looking for it behind this front; and this is a case in which the old associations of the Reynolds period might very well have been kept in memory. Apart from this, the two bays with the wavy line of the iron railing at the top, are picturesquely treated; the windows in the flat of the wall look rather unnecessarily mean and unconnected with the rest of the design. In the same neighbourhood Messrs. Henman & Cooper's "Block of Professional Chambers, Cornwall-street, Birmingham" (1,592) is a very pleasing piece of street architecture, apparently brick and terra-cotta; the manner in which the recess between the two bays is made use of for a bit of architectural effect, by the pier in front of it on one story and the two columns on the other, carrying the line of the wall across, is most praiseworthy.

We will continue our comments on the architectural room on another occasion.

A YEAR'S BUILDING OPERATIONS IN LEEDS.—The report of the Leeds Building Inspector (Mr. W. Towers) for the twelve months ending March 25 last shows that the year was a busy one in the building trade. The total number of plans submitted to the Building Plans Committee was 2,849, or sixty-five more than last year, and the total number sanctioned was 2,199. But the number of buildings shown on the approved plans, 8,952, was 487 less than in the preceding twelve months. Of these buildings, 2,947 (on 531 plans) were houses, and 1,807 mills, warehouses, stables, sheds, and workshops; 2,427 represented additions and alterations, and 1,771 conveniences. In the previous year there were 3,549 houses, and 2,039 mills, warehouses, stables, sheds, and workshops. The 2,947 houses for the building of which authority was given comprised nineteen villas, eighty-eight semi-detached villas, 812 through houses, and 2,028 back-to-back houses. The latter figure is less than in the preceding year, when 2,300 back-to-back houses were sanctioned. The number of through houses is smaller by 285, and semi-detached villas less by forty-five, while the number of new detached villas for whose construction authority has been given is just the same as last year. During the past year 3,030 houses (including 2,035 back-to-back houses and 907 through houses) were completed and certified for occupation, a decrease of twenty-nine; while 1,591 miscellaneous buildings (including churches, chapels, schools, hotels, and other institutions) have been so certified.

NEW THEATRE, YORK.—The plans for the New Theatre, Clifford-street, York, on the site of the Corn Exchange, prepared by Mr. John P. Briggs, of London, were submitted to the City Council on May 14, and were approved.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A MEETING of the Royal Institute of British Architects was held at No. 9, Conduit-street, Regent-street, on Monday last, Mr. William Emerson, the President, in the chair.

The late Mr. Arthur Cates.

The minutes of last meeting having been taken as read,

Mr. John Slater said that before the business was proceeded with he wished to say a few words in regard to their deceased friend, Mr. Arthur Cates. During the last ten or twelve years he (Mr. Slater), perhaps more than most men, had had opportunities of seeing that side of their deceased colleague's character that was very little apparent to those who only met him in an official capacity. Mr. Cates was essentially a strong man all round, and one sometimes regretted, perhaps, that he was a little too prone to show his strength, but under a somewhat forbidding exterior there lay one of the kindest hearts that ever beat in human breast. He had sometimes thought that Shakespeare's words in describing the haughty, overbearing Chancellor of Henry VIII. were very applicable to Mr. Cates—"lofty and sour to them that loved him not, but to those men that sought him, sweet as summer," and he knew personally that not a few young architects had had occasion to be grateful to Mr. Cates for the kind advice and assistance given them as ungrudgingly as unostentatiously. To see Arthur Cates in his favourite Sunday morning walks around the Zoological Gardens describing the peculiarities of some of his pet animals to a group of keenly interested and laughing children was an absolute revelation to those who only knew him in his official capacity, and his death had left a void in the hearts of his friends and acquaintances which it would be very difficult to fill. Mr. Cates was not only an able man, but he was a very learned man, and he (Mr. Slater) had been much struck on frequent occasions to see the evidence of the very wide reach of his reading and learning. Of his interest in and services to that Institute it was too early to speak, and it was too soon for them to attempt to appreciate his loss. The work that he did in instituting the examinations—whatever might be the opinion of the general public as to their value or not—could hardly be overestimated, for if it had not been for Mr. Cates he was quite sure that those examinations would never have been started, and the energy with which he pressed forward his views and carried them was a striking tribute to his character. He was an ideal chairman of committee, and the frigidness which sometimes characterised him when he was simply sitting on a board absolutely disappeared when he was in the chair. In that capacity he was always urbanity itself, and the way in which he gave any member of any Board an opportunity of expressing his opinion was remarkable, and it was a perfect treat to see the way in which he got the business through. No doubt in their *Journal* they would have from the pen of some one who knew Mr. Cates longer than he did a record of his life and work. That night they could only regret his loss, and he was sure he was only expressing the feelings of all who knew him when he said "that he was a man, take him for all in all, we shall not look upon his like again." He would propose that a sincere vote of condolence be sent to Mrs. Cates from the Institute in the loss that she and they had sustained in Mr. Cates's death.

Mr. Woodward said that, before the vote was put, he would like, as Mr. Cates's oldest assistant, to add a few words. It was now some twenty-five years ago that he first entered the office of Mr. Cates, and in those early days they worked from morning to night—because Mr. Cates was a very great worker—and he had had the benefit of receiving the strong tuition to which Mr. Slater had referred. Mr. Cates was a man of very considerable literary attainments; he was a great bibliophosist and a voracious reader. His passion for work was well known to members of that Institute, and that passion for work permeated his office, and, unfortunately, did not leave him when he went home. He did a very great deal of work connected with the Institute at home. His memory and powers of observation were wonderful, and he was able to describe with considerable minuteness nearly every building that he had seen in his tours abroad. Another feature which his (Mr. Woodward's) acquaintance with Mr. Cates led him to point out was the marvellous facility with which he could grasp the contents of his daily correspondence, and he also possessed wonderful powers of placing his reports in official language in a brief, terse, and marvellous fashion.

Mr. T. M. Rickman said he would like to add a few words to those already uttered in respect to the grief they felt at the death of Mr. Cates. He had had the pleasure of working with Mr. Cates on committees, although not always on the same side, and he was quite satisfied that, though he was at times somewhat pugnacious, there was no one more upright in the profession, and no one who had the interests of the profession more thoroughly at heart; and although he sometimes spoke of himself as the drill-sergeant, one could never have an interview with him without feeling that one had learned a considerable amount at his hands, and he believed that all those who had had the privilege of being educated by him had left him with great hopes of future progress. He cordially supported the vote of condolence which it was proposed to send to his widow.

The Chairman briefly supported the motion, and said that it was only of late years that he had got to know Mr. Cates well, and he was astonished to note his wide learning and his comprehensive grasp of all subjects connected with the architectural profession and the very deep interest he took in the Institute. His loss was a very great one to them, for his work in connexion with the Institute had been useful in the highest degree.

The resolution was then carried.

The Late Mr. E. Gregg.

Mr. Graham said he had to announce with regret the death of their colleague, Mr. Gregg, who was first elected a Fellow of the Institute in 1870, and whose genial presence was always welcomed in that room. He was a very active member of the Institute, and took a great interest in everything that was done, and his services for a number of years as a member of the board of examiners reflected great credit not only upon his ability, but upon his assiduity and his devotion to the Institute. The board of examiners would miss his co-operation very much as he was always willing and anxious to fulfil the work entrusted to him thoroughly and conscientiously. As a mark of respect to the memory of their late friend the Institute sent a wreath to his grave, and it was proposed that a letter of condolence be sent to the relatives of their deceased colleague. He asked the members to approve the action taken by the Institute in the matter.

The motion was carried in silence.

Professor W. M. Flinders Petrie then read a paper on the "Sources and Growth of Architecture in Egypt," of which the following is an abstract :—

The Sources and Growth of Architecture in Egypt.

The author said that in no respect was our view of the origins of the arts more enlarged than in the architecture of Egypt. Ten years ago we were starting with the most highly-finished work of the Fourth Dynasty, the great pyramid of Khufu, and were groping in the dark for any clues to the growth of such surpassing construction. To-day it can be shown how every feature arose, and the adoption of stone for building can be dated to a single generation. The unwrought materials, which were everywhere to hand in Egypt, were palm-ribs, papyrus, reeds, maize-stalks, and mud, together with palm-fibre roughly twisted.

A striking sight of the beginnings of the building art may be seen any day in a nomad settlement on the desert edge. Side by side stand (1) a black goat-hair Arab tent, long and low, open always on the leeward side; (2) a tent fenced along part of the open side with a row of maize stalks; (3) a tent fenced all round with maize; (4) a tent in a maize fence mud-plastered; (5) a dwarf wall of brick round the fence; (6) a high brick enclosure with a tent inside to roof it, the tent ropes stretching out through the wall; lastly, a roof is put on the wall, and the tent has disappeared.

The early Egyptians seem, however, to have usually roofed their reed huts with domed roofs, to judge from the engraving of a hut on ivory, at the rise of the First Dynasty (4800 B.C.). The best feature is the strengthening of the corners of the hut by placing at each angle a bundle of reeds lashed together, as seen in the hut on the mace of Narmer. Here we have the origin of the torus-roll down the edges of the buildings, used till the latest stage of the architecture. The lashing together was always retained as an ornament, although the meaning of the roll was long lost.

When papyrus stems were used for walling, instead of reeds or maize stalks, the top was rather weak if stripped of its leaves; hence they were retained and bound together, and the feathery tops served as a barrier above the wall, and finally as an ornament.

Besides these materials, palm-ribs may be seen still used for fences. They are set upright with all the leaves on them, at a few inches apart, and strengthened by other ribs interwoven diagonally each way; just below the weak part of the tip a line of ribs is lashed on with palm-fibre, and the loose nodding tips serve as an effectual barrier to men and animals. The whole is finally plastered with mud up to the top lashing, and forms a very strong fence, which will last for many years. Such a fence or wall is figured as the front of an early shrine hieroglyph in the Fourth Dynasty. Translated into stone, this became the constant feature of every Egyptian building, and this cornice retained to late times the palm-leaf ribbing which proclaimed its origin.

We have preserved to us some views of simple shrines made of the natural materials, similar to the huts of maize stalks still used by the peasant. Here we note the roof sloping backward, and carried on far before the open front, so as to cast a shade, while it is supported on two front pillars of stalks. This was the original type of the rustic shrine adopted as a hieroglyph, and preserved to us from the Fourth Dynasty.

The next material to be noticed is mud-brick, one stage beyond the rough mud plastering. Brick houses and town walls remain from the prehistoric age, probably about 6000 B.C.; and a model of a town wall, with watchmen looking over it, belongs to a rather earlier time.

Regular brickwork developed in use in the prehistoric time, and some arched brick tombs are probably of this age. There can, however, be no doubt of the barrel-vaulted passage in the tomb of King Neter Khet (found this year) belonging to the beginning of the Third Dynasty (about 4200 B.C.), and the magnificent brickwork and arching of the Fourth Dynasty (about 3400 B.C.) shows a long familiarity and free use of it.

Coming to wrought materials, wood was the earliest in use for construction. The prehistoric graves were often lined with matting, and this was, in the later prehistoric, sometimes supplanted by a wooden lining. In the royal tombs at Abydos (4700-4500 B.C.) all of the wooden sides have been destroyed: but the evidences remain most clearly on the cross walls that were built to form cells around the wooden chamber for the offerings. These walls are plastered and whitewashed on the sides, but the ends are all rough brick, evidently built against a pre-existing timber wall, as the mud mortar has taken the cast of the grain of the wood wherever it touched it. The floors were usually of wood: one of the most complete shows the boards about 2 in. thick, resting on beams at the sides and down the axis of the chamber. The roofing was also of wood, as in some cases the casts of the rough-hewn ends of the roofing beams remain in the brick walls of the chamber. The author referred to the tombs of King Qa (4650 B.C.) and King Zet (4600 B.C.), and gave details of their construction. This form of construction is the forerunner of the greatest architecture of the pyramids. For the wooden chamber we find a stone chamber substituted, and the beams of the roof are of limestone or granite in place of wood. But the continuity of the general form and system is unbroken. The earliest royal tombs are plain pits roofed in, as in the prehistoric time. By 4650 B.C., a wooden lining forms a complete chamber, with brick cells around it, but no entrance. Under Den-Setni, 4600 B.C., an entrance stairway is added on the east side. Under Qa, 4500 B.C., the stairway is turned to the north. And the step from this to the usual pyramid form of a north entrance passage sloping down to a chamber, is merely a change of material, but not of form or position. The external form of the mastaba tomb, from which the pyramid was developed (or rather *on* which the pyramid was superveloped) is exactly that of the rectangular mass of sand above the tomb, held in by the

retaining wall of mud-brick, with a large external batter, as over the tomb of King Zet.

The author, having referred to the favourite lattice-work, the analogue of the mushrabiyéh work of Cairo, went on to trace the course of stone-working. The first actual building of stone is the pit-chamber of King Khasekhemui, in the middle of the Eleventh Dynasty, about 4350 B.C. The limestone courses are tolerably regular, varying one or two inches either way. The faces of the blocks follow natural cleavages as far as possible; but most of the faces are hammer-dressed, and then adzed over to level them. The joints have plaster in them, and also spread over the open joints on the face. The same king also worked in grey granite, as two large building-blocks with inscriptions of his have been found at Heirakonpolis and at El Kab. But building in limestone was still rare, and it is probably to the latter half of the Second Dynasty, about 4350–4200 B.C., that must be assigned a series of rough stone pyramids, which stand at El Amrah, Nubt, and El Qula. These are all built of unhewn blocks found loose on the desert and cliffs. Each has successive faces of external finish, which have been coated over with added masonry.

The author next described the fine tomb of King Neter-Ket, probably second King of the Third Dynasty, about 4200 B.C.; the great stone pyramid of Saggara, probably of the same date; and the tomb of King Seneferu at Medum (4000 B.C.).

It is important to see clearly how the pyramid structure is derived from the wooden tombs in unbroken succession, as it has by some been derived from the dolmen and chambered burrow. These structures are quite unknown in Egypt; whereas the continuous stages between the prehistoric pit-grave and the greatest and most accurate structure ever built are clearly traceable. Even the preparation for a pyramid remained just the same as for the wooden tombs of the First Dynasty.

The author concluded with some notes on the subject of pillars. The wooden column appears as an octagon in the models found in the First Dynasty, and in the actual pieces he had discovered in the Twelfth Dynasty, and the copies of such in stone at Beni Hasan. The fluted wooden column is found copied in ivory in the First Dynasty tombs, and is well figured as a hieroglyph in the Fourth Dynasty. The most peculiar form of column is that derived from the tent-pole. This was the origin of the strange form known as the inverted bell capital in the Eighteenth Dynasty at Karnak.

The earliest example known of the lotus column is of the Fifth Dynasty (about 3600 B.C.). The later examples of the Twelfth Dynasty, of the Eighteenth Dynasty, and of the Nineteenth and Twentieth Dynasties, show only a series of lamentable decadence. Each age in Egypt had its special excellence. In the Eighteenth Dynasty a delicate and freely flowing ornamental treatment; in the Fifth Dynasty the finest figure sculpture; in the Fourth Dynasty the grandest constructions; and in the First Dynasty the most lavish use of hard stones for hand objects and table furniture. Diorite, porphry, and such materials were cut in thin and beautiful forms with a familiarity which was never known in later times. But every branch of art, when once it had fully grown, decayed rapidly, and the later work in every respect cannot bear comparison with the older triumphs.

Professor Aitchison asked to be allowed to propose a vote of thanks to Professor Petrie for his most interesting paper and for the extraordinary information he had given them about the form Egyptian architecture ultimately took, and how it was entirely a matter of construction. It was unnecessary to say anything about Professor Petrie's discoveries in Egypt, because they were so well known to the whole of England.

Sir L. Alma-Tadema, in seconding the motion, said that Egyptian architecture was like Egyptian civilisation—they always seemed like things which came full-grown into the world. He felt that for so many years that he could hardly admit the truth to himself. The question of the development of that civilisation had been studied, and, they all knew, by Professor Petrie specially, and they knew to that civilisation they owed a great architecture and many other things besides. In dealing with Egyptian civilisation, there was the question of time to be considered. They spoke of 6,000 years, and it seemed so tremendously long that they sometimes felt it was beyond the reach of humanity. But, after all, 6,000 years was only 100 generations of sixty years, and if they began to think like that they would begin to feel with Professor Petrie that the Egyptians were very much akin to them; and to feel so much more interested in that civilisation, which was so essentially human in its development. They had to thank Professor Petrie that night for lifting up a corner of the mystery which covered that great race, that great civilisation, and that great beginning of human development.

Sir Martin Conway said he could only re-echo the words that had been used in praise of the paper that they had heard and the immense amount of suggestiveness which it contained. He confessed that as he watched the slides upon the screen and listened to what Professor Petrie said, it occurred to him how very strong an illustration he had shown them of one very interesting fact which he thought might be observed throughout the whole history of architecture, and that was how frequently in architecture styles had arisen from the exact contrary to the statement made by Mr. Ruskin. He meant the imitation in one material of forms devised for another. He rather thought it was one of the axioms of Mr. Ruskin that nobody should ever do any such thing as to imitate in one material decorations which were prepared for another. But in the history of architecture he believed it had always been the case. Styles had been developed by doing the very thing deprecated by Mr. Ruskin. In the earliest form of architecture, which they had now had revealed to them, they had the very beginnings of stone architecture—or, at any rate, of the decorative forms used in the earlier stone architecture—derived by direct imitation from the old forms developed when the materials of building were not stone. And just as that occurred then, so it occurred in Greece when stone architecture arose, by the imitation of the forms devised for wooden architecture. He thought they might take the lesson to themselves in the present day, because they were living in an epoch when exactly the same thing was taking place. They saw the metal construction coming in and about to become the dominant constructive feature in all the architecture of the world. He noticed the other day in New York—and he supposed every one had noticed it—that in the great buildings which were really metal buildings faced with other material, the architectural forms were all imitations of those forms which were devised as decorations or even as structural features in old stone buildings. So in the present day they saw going on exactly the same architectural process of development which had been illustrated that night in the extraordinarily interesting beginnings of architectural art described by Professor Petrie. He could only say how fortunate they were to have in Egypt a representative of this country capable not merely of making, as Professor Petrie made, such admirable investigations and of bringing to bear upon newly-opened soil such a bright and intelligent and quickly comprehensive eye, but who was also able and willing almost immediately to reveal them to those at home. He did not, as did so many investigators, keep back his discoveries in his pocket for years and dribble them out in monographs which nobody saw, but came and gave them the immediate benefit of the discoveries which his ability had enabled him to make.

Dr. Murray said he would like to ask Professor Petrie a question which arose from the columns shown on the screen always narrowing towards the top. They would remember that in the frescoes which had been found in Crete the columns widened towards the top, as in the case also of the sculptured column at Mycenæ. He would like to hear whether Professor Petrie had formed any opinion on that subject. Another question that occurred to him was when the lecturer was speaking of those primitive buildings of maize, bound together, from which people built their houses; he was reminded of the passage in the Odyssey where Ulysses described how he built a bridal chamber for Penelope. It was said that he built a stone wall round a living tree and roofed it in. If, as he supposed, a living tree growing in a court was adapted by Ulysses as the supporting element for a room that he built, it would be something analogous to that habit of using natural bodies like maize and so on for the houses in which the people lived.

Mr. R. Phenè Spiers said there were one or two questions he would like to ask—one relative to those masses of brickwork in curved forms. He would be glad to know whether there was any truth in the first theory put forward that the curved form of those masses was due to the fear of their being shaken down by earthquakes. That theory was put forward twenty-five years ago as a reason for the mode of construction, and they could readily understand that an earthquake would have less effect on a mass built together and leaning one towards another than it would on a vertical wall. Of course, if that was the case, then building in those blocks of brickwork at intervals with those curved lines would give a very solid support, and intermediate lines would tie them together and make them very strong. There was another point he would like to refer to, and that was as to the covering over of that chamber where the roof was a 20-ft. span. He did not quite gather whether it was 20 ft. long or 20-ft. span.

Dr. Petrie: Twenty-foot span.

Mr. Spiers said he had always understood that no timber longer than 17 ft. had been found in Egypt. At the same time there was no doubt that it was the custom to cover over tombs with timber, because there were a number of tombs round about the Pyramids in which the roofs were carved in stone in imitation of earlier ones, so that the covering over of houses or of tombs in earlier periods with timber must certainly have been a well-known and recognised custom. He would like to learn what kind of wood it was that was used, because, with the exception of the palm tree, which was not a very strong wood when laid horizontally, it was difficult to understand how so great a dimension as 20 ft. could be covered over by timber, especially if it had to carry 3 ft. 6 in. of sand above it, which must be a tremendous dead weight. Professor Petrie had made discoveries of a remarkable kind, and had set at rest many of the questions which had perplexed the antiquaries of the last century. There was one point which it seemed almost impossible to get people to recognise, and that was the true form of the openings of the doorways. In almost every book they would see it remarked that the doorways in Egypt were always wider at the bottom than at the top; but if one thought for a moment that they were building not with timber but only in crude brick, that would be impossible because the wall would fall over. The only reason he could imagine for the idea was that seen in perspective the batter of the wall came a little more forward, and it made it appear as if the opening in the bottom was wider. There had been much new matter that Professor Petrie had brought before them that evening, and they owed him a great debt of gratitude for having delivered such a delightful and absorbing discourse, full of most interesting facts to all architects. There was one other question he would like to ask, which was whether the fluted columns were shown correctly with hollow fluting.

Professor Petrie replied that they were; they were both flat-sided and curved.

Mr. Stannus said that looking back at the authors who had written on Egyptian subjects, it was interesting to observe that there was a certain analogy between the Egyptian remains and the various crusts of the earth. They remembered that when man in his savage times began to make use of the crust of the earth he could only deal with the tertiary strata of clay. Then later, when he got advanced in civilisation, he was able to deal with the stone and the coal of the secondary strata, and later still, further advancing, he was able to deal with the primary or the metal strata. So it appeared that there was an analogy in that, in the study of the Egyptian discoveries. Reading in the old books they saw that the great idea of Egyptian art was that of the eighteenth and nineteenth dynasties—art which was in a state of effete degradation and debasement was thought to be Egyptian art. Then there came a time when man was able to go further back in the eleventh and twelfth dynasties, and later, since then they had been able to get at the art of the Pyramid builders, and going still further back down to the primary strata, Dr. Petrie had taken them to the art of the first dynasty, and to the art of dynasties even before the first one. They must indeed congratulate themselves that they lived in such times, to have heard all that laid bare to demonstration, and while one congratulated Professor Petrie upon having made such wonderful discoveries

in the fulness of time, there was a certain condolence one might make with him that there was left no more worlds to conquer. It seemed to him that Professor Petrie had almost struck bedrock in Egyptian matters, and that unless he struck another vein his occupation, so far as excavations were concerned, would be gone. Sir Martin Conway was speaking about Dr. Petrie finding things in virgin soil; he thought that Professor Petrie would tell them that it was by no means virgin soil, but that it was ground which had been pretty well picked and hacked over before he had a chance of going over it, and the marvellous things he had discovered just showed the difference between a man who examined with his eyes open and the man who examined them with closed eyes.

The President said he was sure that they felt, as he did, the very greatest gratitude to Professor Petrie for having given them such a very splendid testimony to his research and careful discrimination in working at the origin of Egyptian architecture. To him it was a revelation, and probably to most of them, unless they had made a particular study of Egypt. He had often, in looking at Egyptian columns, wondered where they got the forms from, and he thought the paper which had been read showed that art was indigenous in Egypt, and grew up with the country. The idea that art in Egypt appeared in full bloom, as Sir L. Alma-Tadema had said, had always added a great charm of mystery to it, and only about ten years ago he believed that people talked of travelling to Arabia to try and find out where the origin of Egyptian architecture took place. But the dream of their childhood and the mystery vanished when men like Professor Petrie looked into the origin of things, and found out what actually was the state of affairs. There was one little point which astonished him, and that was the tremendous length of time to which Professor Petrie went back. They were led to believe years ago that the great Pyramid was built about 2000 years B.C., and now, apparently, it was 3800 B.C. They now talked of discoveries of 6000 B.C., which, according to their lessons in childhood, was before the world began.

The resolution having been carried,

Professor Petrie said that, with regard to the question of art being indigenous, that was a difficult matter. The construction was indigenous, but with regard to art that was another question, and he would have the opportunity of showing there were at least two different arts, and these derived from different sources. With regard to the question of the columns which Dr. Murray mentioned, they must have an illustration of the natural materials used in Greece to explain them. He had no doubt but that the origin of them might be found in the materials used. None, however, had yet brought forward an explanation, and it was useless for him to attempt from Egyptian materials to suggest any material which gave form to another country. The other question of the use of the growing tree in construction was particularly applicable in a woody country such as Greece. Unfortunately, in Egypt wood was comparatively scarce, and as to the question of the nature of the wood, he thought it most likely the wood was not Egyptian at all. He thought it was very probably cedar, but the floor beams were probably acacia grown in that country. The large trunks probably came from Assyria, for they knew at that time there was considerable communication as far as Greece, and the gold which had been found was distinctly from Asia Minor. There was no difficulty, especially in view of the large ships which were by them employed, in supposing that the timber was brought down from the woody parts of Assyria. With regard to the beams, there were beams of greater length than 17 ft. 6 in. remaining. He did not think they need be afraid of the load of 3 ft. 6 in. of sand, for if the beams were laid side by side 33 ft. of sand would be the breaking strain. As to the batter of the walls, he knew there was a suggestion that they would be stronger in view of earthquakes, but he did not think that suggestion solved the question.

NEXT MEETING.

The President announced that the next meeting would be held on Monday, June 3, to receive the report of the scrutineers for the annual election.

BRITISH PATENTS AND THE PROPOSED RESEARCH AS TO THEIR NOVELTY.

THE Committee appointed in May of last year by the Board of Trade to inquire into the working of our Patent Acts of 1883 and 1888 in respect of certain specified questions have issued their Report. The Report sets forth that an examination has been made by the Comptroller and his staff with the purpose of ascertaining the approximate number of inventions for which applications are filed in London that are obviously old, or that, as the official records could demonstrate, have been previously protected under letters patent in England. In the result it is found that an aggregate of upwards of 42 per cent. of the "accepted" specifications appear to have been anticipated either in whole or in part; the detailed figures for one hundred inventions being 57·59 per cent. not anticipated, 6·69 per cent. wholly covered by previous patents, 35·31 per cent. partly novel, 0·29 per cent. obviously old—a phrase of the Committee which the Patent Office construe as meaning known in the industry, but not previously protected—and 0·12 per cent. of which the mode or process of manufacture is not stated or indicated. These figures are calculated upon the basis of "completed" specifications taken and passed during the first week of June in the interval of 1877-1899. The Committee represent that the grant of invalid patents is a serious evil, and are of opinion that in the interests of legitimate trade, and of honest traders and inventors, some inquiry as to anticipation by prior letters patent ought to be undertaken at the Patent Office for discovering whether any invention claimed in a deposited specification has been claimed or described in any, and what, specifications of letters patent granted within the United Kingdom dated less than fifty years before the date of the application. From that inquiry, however, they exclude published "provisional" specifications that have not been followed up to their "complete" stage. They recommend further that an Act or Special Order should be passed to declare that the publication of an invention in specifications of letters patent granted within this country, dated fifty years or longer before the date of the application, or in a provisional specification of any date of the kind mentioned, shall not in itself be deemed to be an "anticipation" of the invention under review. They recommend, too, that the applicant shall be officially informed of the result of the inquiry that is made, upon those conditions, into the novelty, or otherwise, of his application, and that the Comptroller shall decide whether a reference to any, and if so what, prior specifications ought to be made by the applicant in his specification by way of notice to the public, with a right of appeal from such decision to the Law Officer. Inasmuch as the Committee's views, if adopted, will involve a considerable reduction of the annual surplus derived from fees, and also render necessary an increase of the executive staff, they propose that additional expert officers should be appointed in order to carry out their scheme, and that the fee due upon the sealing of letters patent should be raised to the extent of 1*l.* more. A tabulated statement in the Report gives the estimated additional charges upon the income of the Patent Office which would follow upon the new procedure. It is calculated that in the financial years 1902-3, 1907-8, and 1912-3, the net diminution of income would amount to, say, 8,631*l.*, 15,230*l.*, and 23,404*l.*, respectively, since the losses of revenue arising from the consequent decrease of renewal fees would amount, approximately, to the several sums of 15,000*l.*, 24,000*l.*, and 28,000*l.*; and the increased administrative expenses to 36,831*l.*, 53,230*l.*, and 65,404*l.*, in those financial years, respectively, whilst the surplus would be diminished from 117,000*l.* for the year 1902-3, to 111,000*l.* for 1907-8, and to 103,000*l.* for 1912-3, after allowance made of about 14,000*l.* derivable from the 1*l.* extra for the issue of sealed letters patent in each instance.

The Committee express their inability to accede to the suggested adoption of some plan for securing the defeasance of a patent that is not being "worked" in this country, in preference to the current altogether unsatisfactory system of compulsory granting of licences. They propose, however, a transfer, under legislative enactment, of jurisdiction in that behalf from the Board of Trade and their expert referees to the High Court of Justice with the power of awarding costs. The jurisdiction should, they think, arise when it is made to appear that the reasonable requirements of the public in reference to the invention have not been satisfied, by reason of the patentee's refusal or neglect to work or grant licences upon reasonable terms; and they add the patentee's failure to "work" his invention to the existing grounds upon which a compulsory licence may be demanded. They consider, moreover, as the condition of foreign inventors should be ameliorated in favour of applicants under the International Convention for the Protection of Industrial Property, that the term of seven months' priority enjoyed by applicants may be properly extended to twelve months, provided that an application by a foreigner under the Convention is accompanied with a complete specification, and that the concession for the longer time is reciprocally met by a similar provision in favour of British inventors in foreign countries.

The reference to the Committee has a limited purview, and rehearses a disclaimer on the part of the Government of either desire or intention to establish any general system of examination as to the novelty of inventions. Yet there are many who think that, even with the limitation imposed upon their labours, the Committee ought to have more boldly determined the long vexed question as to the jurisdiction of the courts in contested cases of infringement and cognate suits. The judges administer justice, it is true, yet we commonly obtain justice from them at a price. A dishonest infringer with money in his purse is sometimes enabled to defer, if not to ultimately defeat, the equitable claims of an inventor whose resources are exiguous and who thereby loses the harvest of his ingenuity and skill. The time has not yet come—indeed, one can scarcely hope it will ever come—when for the familiar legend *sans garantie du gouvernement* we shall find substituted a warrant which will fortify its fortunate, perhaps fatuous, possessor against the world at large. Until commercial integrity shall have become universal, the issue of absolute indemnities against all comers would, it may justly be maintained, do more harm than good. There would seem to be no very strong evidence of the existence of what may be termed vexatious patents to any great extent. Why, then, some will ask, interpose between the patentee and his folly? He is content to waste his fees, and more than content to be vested with the part of an original inventor and to exhibit his letters patent to his friends; disillusion comes in the end.

Whilst many competent authorities upon patent law hold that the new indicated procedure does not go far enough, it is manifest that the advocated changes will impart quite an altered scope and aim to the functions and administration of the Patent Office. The inventor of to-day buys a protection that may perhaps lead to fortune; it may prove utterly worthless, or draw him into costly litigation. He must not look to the Office for either encouragement or warning, nor can they in his adversity give him redress. In France, and we believe in Belgium and Italy, where no preliminary examination obtains, a grant of letters patent amounts to very little more than a certificate of deposit or registration, with the declaration that no official guarantee as to novelty is conveyed. In Austria, Germany, and notably in the United States of America, a search into novelty is undertaken by the State, and letters patent are withheld from an applicant whose claim is found to have been anticipated, even in the shape of a publication that in itself is not a patent. But there remains the question—what constitutes valid "anticipation"? When that controversy arises recourse is had to the courts, with their concurrent delays, disappointments, and expenses. Our technical staff of trained examiners will at times be sorely tried in their efforts to distinguish, albeit non-judicially, between an alleged new invention and what is apparently an invention in anticipation; still, having in view the care which, as the Committee acknowledge, they bestowed upon the academical investigation we have already mentioned, there seems to be small reason to apprehend, as some do, that any serious failure will ensue in that direction. We should remember, too, that in most cases an astute inventor, who applies in *bonâ fide*, has made, or caused to be made, the previous search which his prudence and his fears alike may dictate. We do not suppose that the

most strenuous champion of free trade will contend for a common right to trade upon men's brains. Invalid patents are illegal monopolies; the safeguard that is needed is protection against unscrupulous persons who apply their cleverness to gaining profit through the necessity or ignorance of others. The fresh powers that will in all likelihood be conferred upon the Comptroller should enable him to frustrate the designs of so-called "inventors" after that kind by placing on record that they are seeking to obtain what lawfully belongs to some one else. All things therefore considered, we think the measures which the Committee advance for adoption may form, at any rate, the basis of advantageous legislation, and tend to promote, though possibly to a less degree than the more sanguine expect, the legitimate claims of those who may fairly look to the State for both security and guidance.

The report is signed by Sir Edward Fry (chairman), Lord Alverstone, Sir W. H. Houldsworth, M.P., Mr. F. J. S. Hopwood (Board of Trade), Mr. S. E. Spring Rice (Treasury), Mr. J. Fletcher Moulton, K.C., Colonel T. Walter Harding, Mr. E. Carpmael (Institute of Patent Agents), and Mr. Herbert Hughes (Cutlers' Company, Sheffield). The last three gentlemen add qualifying notes to the general statement, and Sir Edward Carson, K.C. (Solicitor-General), was prevented by illness from appending his signature.

ASSOCIATION OF MUNICIPAL AND COUNTY ENGINEERS.

A MIDLAND counties district meeting of the members of the Association of Municipal and County Engineers was held in the Guildhall, Oswestry, on Saturday, May 18. The President (Mr. C. H. Lowe, C.E., Hampstead) occupied the chair, and among those present were Messrs. J. Price, Birmingham; A. Greatorex, West Bromwich; H. Richardson, Aston; T. Cole, London (secretary); J. S. Pickering, Nuneaton; G. W. Lacey, Oswestry; J. W. M. Smith, Wrexham; C. L. N. Wilson, Bilston; J. Parker, Hereford; A. T. Davis, Shrewsbury, &c.

The Mayor, in welcoming the members of the Association, said they were naturally proud of their ancient and important history, but they were still more proud of the public spirit and enterprise of their business men. They were the centre of a large agricultural district, and as a corporation had endeavoured by building large and commodious markets to encourage and assist the farmers, so that instead of retrogressing, as many agricultural towns had done, they were one of the most successful market towns in the United Kingdom. In ten years the rateable value had increased from 31,377*l.* to 47,939*l.*, and the rates had fallen from 1s. 8d. to 1s. 2d. per half-year.

The Town Clerk (Mr. Parry Jones), Dr. Lewis, Chairman of the Sanitary Committee, and Mr. Smith, Chairman of the Markets Committee, joined in the welcome accorded to the Association.

On the proposition of Mr. A. D. Greatorex, West Bromwich, Mr. J. S. Pickering, of Nuneaton, was re-elected honorary district secretary.

Mr. G. W. Lacey, Borough Engineer and Surveyor, read a paper on Oswestry municipal work and progress. He said the area of the borough was 1,888 acres and the estimated population nearly 10,000. It was an important market centre, drawing large quantities of all kinds of cattle and agricultural produce from within an extensive radius. The municipal buildings, Renaissance in style, faced with Grenshill stone, were erected in 1892 from the design of Mr. Cheers, of Twickenham, with modifications by Mr. T. M. Lockwood, of Chester, the consulting architect to the Council, who superintended the erection of the buildings, which cost 12,000*l.* The water supply was derived from a gathering ground in the hills of Denbighshire, 5½ miles distant from Oswestry. Prior to the construction of the impounding reservoir there was only a small catch-tank in addition to the service reservoir, so that without proper storage the supply was somewhat precarious in the summer months. The reservoir was formed with an earthen embankment, and the contractor failing to carry out his contract the completion of the work was undertaken by the Corporation. The amount of the tender for the work was 9,341*l.*, but by the time it was completed the cost was 21,806*l.* It had a capacity of 24,000,000 gallons, which was equal to 117 days' supply at the present rate of consumption. The water was of good quality, but contained peat, which naturally affected the colour, but not its purity or suitability for dietetic purposes. The main sewage system was constructed in the year 1867, and all the sewers had self-cleansing gradients. The daily collection of house refuse throughout the town was in operation. The method of disposal was by tipping, but this could not be characterised as satisfactory in these days. The gasworks and electric light works were in the hands of companies, and negotiations with a view to purchasing the latter undertaking last year met with considerable opposition, and the result of the Local Government Board inquiry which was held was against the sanction being granted. The bacterial sewage disposal works were designed and partly carried out by Mr. R. O. Wynne Roberts, and completed under his (Mr. Lacey's) supervision. There were nine primary beds, the surface area of each being 60 ft. by 60 ft., and nine secondary beds, each with a surface area of 60 ft. by 50 ft., and they were constructed partly in the natural ground and partly by earthen embankments, which were 11 ft. wide at the bottom and 2 ft. 6 in. wide at the top. In the secondary bed embankments clay puddle was put as a security against percolation. On the floors of the beds, lines of 3-in. diameter agricultural pipes a yard apart were laid, connecting with brick channels, which terminated in a small brick chamber in each bed, with the exception of the central ones, where they connected with a channel round the valve chambers. From these brick chambers 9-in. glazed pipes were laid to the valve chambers for discharging the effluents. The beds were filled with cinders which were riddled from an old and large accumulation of house refuse; the gauge of those in the primary beds being from ¾ in. to 1½ in., though containing very little of the larger size, and in the secondary from ⅜ in. to 1 in. The depth of the cinders was 4 ft. 6 in. in each series. In the centre of each series there were automatic valves, which were designed by Mr. Wynne Roberts in conjunction with Mr. Henry Roberts, water inspector, worked by water pressure from the town mains, which distributed the sewage and primary effluent to the various beds in rotation, held up the sewage in contact in the beds, and discharged the effluents in due course. Since the completion of the beds it had been found necessary to put in aëration pipes from the end of the collecting channels to the surface in order to facilitate the discharge and complete the drainage of the contents of the beds, and this had had a beneficial effect. The primary beds had since the commencement of their full use been reduced in capacity by about 30 per cent., but no further decrease had been observed for some time; if anything, since the aëration pipes referred to had been fixed the capacity had increased, and certainly the results had been somewhat better than before. No appreciable decrease had taken place in the capacity of the secondary beds. The sewage first of all passed through one or both of the two settling tanks, 70 ft. by 15 ft. by 4 ft. 6 in., and in these a considerable quantity of sludge precipitated, no chemicals being used. The sewage and primary effluent were distributed over the beds by means of wood troughs, and the final effluent passed away through 12 in. diameter pipes and discharged into a small watercourse. The sludge from the settling tanks was pumped out at intervals of from eight to ten weeks, mixed by machinery with fine screened ashes, and found a ready sale to farmers at 6d. per load. It was not contended that this part of the process was desirable to continue, and some time ago he recommended his Sanitary Committee to consider the advisability of adding septic tanks, and in all probability this would eventually come to pass. The average daily flow of sewage last year was 440,000 gallons, and the dry weather flow 387,000 gallons. This included a considerable quantity of spring or surface water, but, notwithstanding this dilution, the sewage was strong, and contained a considerable proportion of brewery, tannery, and fellmongers' refuse. The occasional analyses made of the effluent from the primary beds went to show that a remarkable proportion of the purification was effected by the first contact. Samples of the effluent which had been kept for longer than a year showed no signs whatever of putrescence, and analyses made during very severe winter weather showed but a slight diminution in the degree of purification. This diminution was but natural, as when the beds were partially covered with a sheet of frozen snow the admission of air into the beds must of necessity be retarded. But this lessening of aëration was not likely to be of sufficient duration to affect materially the results. The cost of construction of the bacteria beds was slightly over 2,000*l.*, and the cost of maintenance 225*l.* per annum. The cost of construction was defrayed out of revenue, sanction to borrow the money not being obtained, as the works did not allow for dealing altogether with six times the normal flow of sewage and for after treatment of the effluent on land. Very extensive provision had been made for markets, and extensions were in progress. The tolls of the whole of the markets last year amounted to 1,765*l.* Plans for a proposed swimming bath were before the Local Government Board, and a number of public street improvements had been carried out, the cost amounting in the aggregate to a very considerable sum.

Mr. J. Price, Birmingham, in moving a vote of thanks to the author of the paper, referred to the new by-laws under the consideration of the Local Government Board, and said it was as important that the Association of Municipal Engineers should have a say as to what the by-laws should be as the Institute of British Architects. As to refuse collection, the town was well ahead, but when they came to disposal he considered they might adopt some better method than tipping in the vicinity of the town. He suggested that the Council should cremate it, even if they did not get £ s. d. from the cremation in the shape of power.

Mr. A. T. Davis, County Surveyor of Shropshire, said he noticed that from 1891 the population had increased by 1,204, while some 446 houses had been built. Therefore it looked as if the town had been overbuilt, unless there had been a good deal of pulling down of old houses. He knew the tendency on the part of builders to put up houses, and of tenants to remove from the old houses into new houses.

Mr. J. Lobley, Hanley, commended the action of the Corporation in undertaking the working of street improvements, but expressed a fear that in a few years a width of 30 ft. and 36 ft., though a great improvement upon 15 ft. 6 in., would be found insufficient. Where they did not wish to undertake heavy capital liabilities, he suggested that they should prevent matters getting worse by insisting that all the new buildings should be put back to a new building line.

Mr. J. Parker, Hereford, expressed the opinion that there was a great future for the destruction of refuse, apart from the first object of sanitation, for each 1 lb. of refuse would evaporate 1 lb. of water for power purposes.

Mr. A. D. Greatorex, West Bromwich, said with respect to bacteria beds they wanted definite information as to the loss of capacity, and he advised every town to have meters fixed. Judging from the cost of the beds at Oswestry, they had been carried out remarkably cheap.

Mr. J. S. Pickering, Nuneaton, also urged the necessity of measuring the effluent from the beds, either by meter or some other equally accurate means. A mere general statement that the beds decrease in capacity was not sufficient. He thought it would be found in every case without exception that this gradual silting up was taking place, and sooner or later the necessity of resifting the material would have to take place. He did not know that there was any serious objection to the use of bacteria beds; but it did affect the question of material very considerably. It used to be thought that coke and ashes were the best material to be used. That idea is now exploded, and it seemed to be recognised that any hard material would answer the purpose. He was using granite for the coarse and probably for the fine beds he was laying down. The advantage of that would be seen when they came to sift the material. In the case of coke it would be a difficult matter, as there would be a good deal of disintegration.

The vote of thanks having been carried,

Mr. Lacey, in reply, said the cost of bacteria beds came out at 3s. 6d. per square yard. There was a good deal of truth in what Mr. Davis had said, that the town had overbuilt itself, and the old property was left for the new. Under the by-laws all new streets must be 36 ft. wide. The particular improvement carried out at 30 ft. was because the owner

would not sell more land than sufficient to make a 30-ft. road. He was glad to hear Mr. Parker's advocacy of refuse destruction. He would like to see the Council adopt a destructor, and perhaps the discussion would induce them to reconsider their decision. With reference to the bacteria bed, they had gauged the flow by meter almost from the commencement. He was inclined to be at one with Mr. Pickering as to the material forming the beds. With cinders there was a tendency to disintegrate and become finer. It was all right now, but what it would be in ten or twenty years' time he could not say.

The members then proceeded to view the new fire-station and the market extension, after which they were entertained by the Mayor and Corporation to luncheon at the Wynnstay Arms Hotel. The afternoon was devoted to visits to the filter beds of the Liverpool Corporation Waterworks and to the bacteria beds for the treatment of the sewage of Oswestry.

THE ARCHITECTURAL ASSOCIATION DISCUSSION SECTION.

THE eleventh meeting of the Discussion Section of the Architectural Association for this session was held at 56, Great Marlborough-street, on the 17th inst., Mr. C. H. Strange, chairman of the section, in the chair. The paper of the evening was entitled "A Tour in Mid-France," by Mr. Percy E. Newton.

Starting with Bordeaux, a city under English rule from 1152 to 1453, it was shown what an important bearing this had on English architecture of the period, a succession of skilled workers being brought over from France by Edward I. The more important buildings of Bordeaux were briefly described, mention being made of the splendid carving on the façade of the church of St. Croix. The modern Place des Quinconces was mentioned as a successful treatment of a public promenade.

The route followed from Bordeaux was the course of the Dordogne, a tributary of the Garonne. St. Emilion was the next place visited, and its curious cluster of buildings, formed round the hermitage of the Saint, described. A most interesting place was the next on the list, Montpazier, a town built by Edward I. of England, and practically unchanged to this day. A plan of the town was exhibited, and its remarkable rectangularity of design and the picturesqueness of its arcaded market place commented on. Rocamadour, the great resort of pilgrims in mediæval and modern times, and its throng of the faithful mounting the hundreds of steps to the shrine; Souillac, with its great abbey church so mosque-like in character; and the fine fifteenth-century church of St. Géraud at Aurillac were then touched on by the lecturer, who then took his audience through the hilly district of the Cantal to Le Puy en Velay, in many respects the most picturesque town in France. Mention was made of its numerous peaks, each crowned by a building or a statue, and of the cathedral of Notre Dame, unrivalled in its situation and approach. Mende and its cathedral were next described, and then a voyage down the Tarn, flowing through gorges 2,000 ft. deep—a country interesting to the admirers of Robert Louis Stevenson, his "Travels with a Donkey" being in this district. Albi was the next town visited, and its unique fortress-church, of which a very complete set of photographs was shown, was described, as well as its marvellous choir screen, one of the glories of Gothic art. The last place on the list was Toulouse, where is the cathedral church of St. Etienne, with its beautiful stained glass and strange disregard of axial lines; the church of the Jacobins, a rare example of a church with a central range of columns; and the important church of St Sernin, the central tower of which may have served to suggest to Sir Christopher Wren his design for the steeple of St. Bride's—these, with some of the fine old houses of Toulouse, were rapidly passed under review by the lecturer, who concluded by saying that his paper would have fulfilled one useful object if it persuaded any of his hearers to pay a visit to this part of France.

Mr. H. C. Corlette proposed a vote of thanks to the author for his paper. He referred to the church at Albi, and mentioned that the present turrets were introduced by Viollet-le-Duc.

Mr. Cuthbert Harding seconded, and the discussion was continued by Messrs. G. H. Smith, C. H. Brodie, R. H. Weymouth, and C. H. Strange.

Mr. Newton responded, and in answer to queries put to him as to the best month for a cycle tour in the district described in the paper, gave preference to September, although he considered March or October favourable for touring.

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, Mr. A. M. Torrance, Chairman, presiding.

Loans.—On the recommendation of the Finance Committee it was agreed to lend Hampstead Borough Council 1,000*l.* towards the purchase of Dollis Hill estate; Westminster City Council 11,660*l.* for street improvements and other works; Battersea Borough Council, 1,410*l.* for public library purposes; Hampstead Borough Council, 17,225*l.* for electric lighting purposes; School Board for London. 200,000*l.* for schools; Central London Sick Asylum Board, 3,390*l.* for erection of asylum; Fulham Guardians, 111,875*l.* for purchase of property and conversion of premises into a receiving house for children; Poplar Guardians, 15,900*l.* for site for officers' quarters and engineering works at workhouse, &c.; St. Olave's Guardians, 18,225*l.* for erection of workhouse and chapels; and Woolwich Guardians, 15,000*l.* for erection of homes for children.

List of Rates of Wages and Hours of Labour.—The same committee reported as follows:—

"The Electrical Trades Union have called our attention to the fact that the rate of wages for wiremen in the Council's list, viz., 8½d. to 9½d. per hour, is not that in practice obtained, and they have asked that the rate may be increased to 9½d. per hour. After careful inquiry, we have come to the conclusion that the Council's list of wages and hours should be so amended. We recommend that the rate of wages inserted in the Council's list of rates of wages and hours of labour as payable to wiremen be amended, and that the rate be increased to 9½d. per hour.

This was agreed to.

London County Council Central School of Arts and Crafts.—The Technical Education Board reported as follows, the recommendation being agreed to:—"For some years past we have been seeking suitable premises for the permanent accommodation of the London County Council Central School of Arts and Crafts, at present housed in premises held on a half-yearly tenancy at No. 316, Regent-street, and additional premises held on a three years' agreement at No. 314, Regent-street. . . . . Our attention has been called to the premises lately acquired by the Council at the corner of Southampton-row and Orange-street, in connexion with that street improvement. The Council is now in possession of a cleared site at this spot admirably adapted for the erection of a building which will accommodate all the work at present carried on in the London County Council Central School of Arts and Crafts, together with instruction in certain other artistic industries, and will also provide accommodation for the London County Council School of Photo-Engraving and Lithography in the event of that school being unable to continue the tenancy of its present premises after the termination of the existing agreement. . . . . We have not yet considered in detail the plan of the building to be erected, but the cost of a suitable building on this site may be estimated at about 60,000*l.*, some part of which, if not the whole, we shall be able to provide out of the sum placed at our disposal by the Council under the head of 'new institutions.' . . . . The site in question has a frontage of about 89 ft. to Southampton-row, of about 100 ft. to Orange-street, with a total area of about 11,000 square feet. We recommend that the estimate of 45,000*l.* submitted by the Finance Committee be approved, and that the site in question be appropriated for the purposes of technical instruction within the provisions of the Technical Instruction Acts, and that the estimated value—namely, 45,000*l.*—be refunded to the Council by the Technical Board by annual payments extending over sixty years."

Lifts for Greenwich Tunnel.—The Bridges Committee recommended:—"That the supplemental estimate of 6,000*l.*, submitted by the Finance Committee for supplying and fixing single lifts in the shafts of the Greenwich footway tunnel, be approved, that tenders be invited for the erection of the lifts, and that advertisements be issued in the usual journals."

This was agreed to.

Brickmaking on the Norbury Estate.—The Housing of the Working Classes Committee reported as follows, the recommendation being agreed to:—

"The Council in purchasing the Norbury estate purchased also the brickmaking plant which was already thereon, and which had been used by the vendor of the estate in the making of over two million bricks. The estate comprises a large quantity of brick-earth, and as this earth exists just where the land rises and will require levelling, every consideration points to the advisability of our making the best possible use of it. We have, therefore, given the question our careful consideration, and have come to the conclusion that it is desirable that the Council should have bricks made for use in the erection of cottages on the estate. In order that this may be done, we are of opinion that the Council should advertise for a contractor who will undertake the making of the bricks at a fixed price per thousand. It should be mentioned that, on the acceptance of a tender, bricks of a sufficiently good quality would be taken from the contractor as required, and the money necessary for this to be done will be provided in the votes which the Council will pass from time to time for the erection of the cottages. The system which we propose will, therefore, not commit the Council to any expenditure at the present moment other than it already contemplates. Moreover, a considerable saving in the cost of the cottages is anticipated from the adoption of this course. A further consideration, however, arises, and this is in connexion with the standing orders of the Council with regard to rates of pay and hours of labour. Nearly the whole of the work done in brickmaking is done by piecework, and paid for accordingly. The rates paid vary according to the locality in which the work is done and the quality of the brick made, and there does not appear to be any trade union regulating either the rates of pay or the number of hours to be worked. In these circumstances it will be necessary for the Council to fix minimum rates of pay for each kind of work, and a maximum number of hours which shall be worked per week. We have made due inquiry and have ascertained that a maximum of sixty hours per week would be reasonable. We have, also after inquiry, ascertained rates of pay for the various descriptions of work to be performed, which we think the Council may adopt as being fair in the trade. We recommend—

(*a*) That the following rates of pay and hours of labour be fixed as the minimum rates and maximum hours to be observed by any contractor in the making of bricks on the Norbury estate, and that such rates and hours be inserted in any contract for the purpose—

For hand-made clamp-burnt bricks—

Description of Work.	Minimum Rate of Pay.
Digging	4½d. per cubic yard.
Soiling	3d. per thousand bricks.
Sharing out	7d. " "
Moulding, &c.	6s. 6d. " "
Skintling	3d. " "
Setting	2s. 3d. " "
Daywork	6½d. per hour.

Engine-driver 8d. per hour.

For wire-cut machine-made bricks—

Description of Work.	Minimum Rate of Pay.
Pit men	1s. 8d. per thousand bricks.
Cutting off	1s. " "
Running out	1s. 6d. " "
Skintling	3d. " "
Setting in kiln	1s. 10d. " "
Drawing from kiln	1s. 3d. " "

Engine-driver, 28s. per week.

Maximum number of hours to be worked per week under either Schedule A or Schedule B, 60 hours.

(*b*) That the Housing of the Working Classes Committee be authorised to invite tenders for prices for the making of such bricks as the Council may require in connexion with the development of the Norbury estate."

Additional Accommodation, Farmfield Asylum.—The Inebriates' Acts Committee reported that they had had under consideration the following tenders for the construction of additional Buildings for female inebriates at Farmfield:—

R. Wallace	£29,921 11 6
Foster Bros.	21,579 0 0
Samuel Redhouse	21,191 0 0
Herbert Hutchinson	20,200 0 0
Martin, Wells, & Co.	19,799 0 0
J. Cracknell	19,032 0 0
R. Cook & Sons	18,625 0 0
Potter Bros. ‡	18,560 0 0

‡ Modified and accepted at 17,660*l.*

The tender of Messrs. Potter Bros. was accepted at 17,660*l.*

Improvements.—The following recommendations of the Improvements Committee were agreed to :—

"That the amount of the Council's contribution in respect of the widening of Fulham Palace-road, between Bishop's Park-road and St. James's Home, undertaken by the Council of the Metropolitan Borough of Fulham, be 988*l.*"

"That the amount of the Council's contribution in respect of the widening of Fulham Palace-road, between Fulham Cemetery and Lygon's Almshouses, undertaken by the Council of the Metropolitan Borough of Fulham, be 200*l.*"

"That the amount of the Council's contribution to the Council of the Metropolitan Borough of Stoke Newington, in respect of the widening of Church-street at the Three Crowns public-house and at Nos. 2, 4, 6, and 8, Church-street, be 4,025*l.*"

Sewer Works.—The following recommendations of the Main Drainage Committee were agreed to :—

"That the expenditure of 1,950*l* be sanctioned for the execution of repairs to the Islington branch of the London Bridge sewer between Liverpool-road and Canonbury-road, and that the work be carried out by the Works Department as a jobbing work.

That the expenditure of 1,170*l.* be sanctioned for the execution of repairs to the St. John-street sewer between Northampton-street and Albemarle-street, and that the work be carried out by the Works Department as a jobbing work."

House Refuse.—The Public Health Committee recommended, and it was agreed—

"(*a*) That By-law No. 7 made by the Council under Section 16 (2) of the Public Health (London) Act, 1891, should be amended so as to read as follows :—'The Sanitary Authority shall cause to be removed not less frequently than twice in every week the house refuse produced on all premises within their district.'

(*b*) That a copy of the proposed amended by-law be sent to each of the London Sanitary Authorities for their observations in pursuance of Section 114 of the Act."

Theatres, &c.—The Theatres and Music Halls Committee recommended—

"That Messrs. Runtz and Co. be informed that the Council has no objection, so far as its regulations under Section 12 of 41 and 42 Vict., cap. 32, are concerned, to the arrangements shown on the eight plans submitted by them in regard to the Adelphi Theatre."

"That Mr. Matcham be informed that the Council has no objection, so far as its regulations under Section 12 of 41 and 42 Vict, cap. 32, are concerned, to the arrangements shown on the two plans, dated April 26, 1901, submitted by him in regard to the Marlborough Theatre, on condition that the barrier shown at the back of the upper circle be at least 8 ft. high."

Having transacted other business, the Council adjourned until June 18.

APPLICATIONS UNDER THE 1894 LONDON BUILDING ACT.

AT the meeting of the London County Council on Tuesday the following applications were considered. Those applications to which consent has been given are granted on certain conditions. Names of applicants are given in brackets. Buildings are new erections unless otherwise stated :—

Width of Way, Line of Frontage, and Construction of Building.

Woolwich.†—The placing of a temporary wooden watch-box on the forecourt of Nos. 160 and 162, High-street, Eltham (Mr. O. Fleming for the Fire Brigade Committee of the Council).—Consent.

Building for the Supply of Electricity.

Lambeth, North.—An addition to the air-compressor house at the generating station, No. 85, Commercial-road, Lambeth (Mr. W. B. Pinhey for the Charing Cross and Strand Electricity Supply Corporation, Limited).—Consent.

Formation of Streets.

Wandsworth.—That an order be issued to Messrs. Marler & Co. sanctioning the formation or laying out of new streets for carriage traffic on the west side of Thrale-road, Streatham, and in connexion therewith the widening of Thrale-road (Col. R. J. Aspinall).—Agreed.

The recommendation marked † is contrary to the views of the Local Authority.

BRITISH EMBASSY, PARIS.—The stables at the British Embassy at Paris are to be newly fitted up by the St. Pancras Iron Company.

ARCHITECTURAL SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS.—The Report of the Society for the year ending April 1901 (the fourteenth annual Report) states that the total number of members at present is 111, as against 109 last year. The Society are hoping to get into more convenient quarters by renting a room from the Literary and Philosophical Society, together with the use of their lecture-hall for six nights in the year. One passage in the Report shows that the Sheffield Society, like some others, has been vainly endeavouring to come to some agreement with the builders in regard to a contract form, and that the negotiations have been rendered useless, in this as in other cases, by the demands of the builders in regard to an arbitration clause. The Report on this point is as follows :—

"It will be remembered that in the last Report the question of the proposed Contract Agreement Form had not been settled owing to the non-adherence on the part of the builders to an informal agreement which had been arrived at with a deputation on August 28, 1899. On April 22, 1900, the following letter was received from Mr. Spink, when the Council unanimously agreed upon the resolution which follows :—

[COPY.]

'53, Broomgrove-road, Sheffield,
April 22, 1900.

DEAR SIR,—In reply to your letter, dated April 11, I am instructed by my Committee to inform you that it is not able to agree to a limited arbitration clause, and further to ask you to allow the matter to stand over for a short time. The Council of the Federation of Building Trade Employers have advised the various Associations that negotiations are about to be made with the architects and surveyors in the federation district for one uniform agreement form.—Yours faithfully,

W. J. SPINK, Sec. M.B.A.

W. C. Fenton, Esq.'

[COPY OF RESOLUTION, MAY 16, 1900.]

'That this Council is unable to alter its decision conveyed to Mr. Spink on the 11th ultimo, and regrets that the Master Builders' Association is not prepared to adhere to the agreement arrived at with this Society at their interview on August 28, 1899. Under these circumstances this Council sees no advantage in further continuing negotiations with the Association.'

This resolution was followed by a letter on June 13 from Mr. Spink, but the Council considered it inadvisable to reopen the matter. They regret that they have been unable to come to an agreement with the Master Builders' Association on this matter, but the members will see that no time or trouble has been spared by the Council in endeavouring to bring this matter to a satisfactory conclusion."

LIVERPOOL ARCHITECTURAL SOCIETY.—The fifty-third annual report of this Society shows that the Society now numbers 140 members. Among those who read papers during the past session were Mr. Alfred Darbyshire, Mr. Halsey Ricardo, Mr. Baillie Scott, Professor Beresford Pite, Mr. A. W. Paterson, and Mr. Arthur S. Flower. It is hoped that the Society will be incorporated before next session. At the annual meeting Professor Simpson was re-elected President, Mr. Dod Hon. Treasurer, Mr. Dickenson Hon. Librarian, Messrs. Hastwell, Grayson, and G. W. Fraser joint Hon. Secretaries, and the following were elected as the Council :—Messrs. Deacon, Eccles, Hartley, Ould, Strong, Thicknesse, Willink, Hinde, and Thornely.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—At the meeting on the 15th inst., Mr. C. H. Compton, V.P., presiding, "Early Colonisation of Britain by Highly Civilised and Refined Immigrants" formed the subject of a carefully thought-out and original paper by Dr. Phené, F.S.A., V.P. of the Association. The Doctor, who has travelled extensively in the Levant and on the Spanish and Italian shores and islands, has recently been studying and examining some very ancient records which have reference to the early States in and around Etruria in the pre-Roman age. These States contracted with Carthage not to colonise a particular island, the name of which was carefully concealed under an anonym. By tracing the routes of certain tribes mentioned by Julius Cæsar and Diodorus Siculus he had been able to find corresponding remains of such tribes with identically the same place name in each case, leading towards and into Britain, which all tended to show that the anonymous island was Britain. By a breach of the contract with Carthage, the island had been so colonised, and enormous wealth had been accumulated of the gold from Ireland and of many valuable products from Britain, leading to the inference that this secretly-conducted commerce had been heard of by Cæsar, who, in consequence, summoned the congress of merchants to ascertain the particulars, but, failing to obtain the information, through the reticence of the merchants, invaded Britain and returned with "much booty," as related by Strabo. It is an interesting question whether this booty was gold—several classical writers record gold as a British export. The paper was illustrated by several well-drawn charts and plans.—Mr. Allan Ovenden Collard followed with some interesting particulars of the history of the very ancient body of "Free Fishers and Dredgers," of Whitstable, famous for its oysters from Roman times, for it was about the year 80 A.D. that they were first exported to Rome by Julius Agricola. The history of Whitstable is most closely interwoven with its fishermen, who have a history and ancestry reaching far back in the dim past. Some of the family names can be traced back for centuries in the enrolment books preserved by the present Whitstable Fishery Company.

ENGINEERING SOCIETIES.

THE INSTITUTION OF JUNIOR ENGINEERS.—On Monday evening, May 20, the members of this Institution paid a visit to the works of the Renewable Electric Lamp Company, at Brunswick-place, City-road, London. They were received by the managing director, Mr. H. E. Kershaw. The processes carried on were shown in operation. In addition to the renewing of old lamps by the introduction of a new filament the company are manufacturers of incandescent lamps, the filament being prepared in a special way. Its consumption of current is as low as 2·7 watts per candle power, and it is guaranteed to burn a thousand hours. In the renewal process, the bulb is reopened, the old filament is detached and a new one inserted, thus avoiding the wastage of the bulb, the cap, the platinum, leading in wires, &c. In the glass-blowing room where the bulbs are expanded, and the filaments inserted, both the Ediswan and the American methods were shown. Entering the mechanical exhausting room, the members saw the system employed for exhausting the bulbs of air, and permanently sealing them ; and in the laboratory the filaments were seen in process of manufacture. The flashing of the filaments by being overrun 30 per cent. beyond their nominal candle-power, and the jointing of the platinum filament by electrolysis were shown, as was also the process of jointing the platinum to the copper wire. The apparatus for exhausting by means of the mercury pump was also seen at work. The concluding operations of capping, &c., each lamp having been inspected, the method of testing was fully explained and demonstrated.

THE SURVEYORS' INSTITUTION.

THIS Institution will visit Southampton on May 30 and 31. The Hartley Council of Southampton has granted the use of the Lecture Hall and other rooms in the Hartley College for the reception and meetings on Thursday, the 30th inst., on which day the following papers will be read and discussed :—"Southampton : Its Past and Present," by Mr. W. Burrough Hill ; "The New Forest," by Mr. F. J. Smith (Chairman of the Provincial Committee) ; "The Liability for Farm Fires caused by Sparks from Railway Engines," by Mr. C. P. Hall ; and "Recent Propo-als for the Amendment of the Law and Practice as to Ancient Lights," by Mr. P. E. Pilditch.

The Mayor will entertain the members at luncheon in the Pavilion of the Royal Pier at 1.30 p.m., and the members will dine together at the South-Western Hotel at 6.30 p.m.

The following day will be devoted to visits to places of local interest.

CONGREGATIONAL CHURCH, HARRINGAY.—The foundation-stone of a new Congregational church has just been laid at Harringay. The new church will contain a chancel and choir, nave, aisles, double transepts, and an end gallery, together with minister's and deacons' vestries. It will be capable of seating some 800 persons. Messrs. D. Church & Sons Finsbury, are the architects.

Illustrations.

RIMINI CATHEDRAL.

THE Church of S. Francesco, now the cathedral, goes by the name of the Tempio Malatestiano. It is an Italian Gothic church of the fourteenth century, with a nave 115 ft. long and 30 ft. broad, three chapels on each side, a choir of one bay, and a semicircular apse. In the first half of the fifteenth century Rimini, like Urbino, was one of the seats of the Early Florentine Renaissance. One of its Dukes, Charles, was a great patron of the Humanists, and tried to attach Ghiberti to his court. Another, Sigismond Pandolfo Malatesta (1428-1468), obtained the assistance of the great scholar and architect, Alberti, and proceeded to transform the inferior Gothic interior of S. Francesco into a magnificent memorial of the wealth and alliances of the Malatesta family, and of the eminent part taken by the reigning Dukes in the revival of classical art and literature. Little is left of the Gothic church except the pointed arches of the nave-arcade and some traceried windows. The façade is unfinished, the intended dome was never built, nor the wooden vault which was to have been where now is a simple open timbered roof. The church was dedicated, with the characteristic Paganism of the day, to the Duke's mistress, "Divæ Isottæ," though it is only fair to add that she afterwards became his wife. As the church was now intended to be the *Malatestorum domus heroidum sepulchrum*, Alberti flanked the nave by seven imposing arches on panelled piers detached from the wall of the church, elevated on a continuous basement, and masking the Gothic windows. Under these arches are placed seven great sarcophagi in the ancient style, in which are deposited the ashes of the great men whom Malatesta had collected around him—poets, orators, philosophers, and soldiers. In the interior are seen everywhere the coats of arms of the Malatestas and their alliances, the most striking cognizances being the rose and the elephant, and the monogram of the united initials of Sigismond and Isotta. There is abundance of classical ornament and emblems, mythological sculptures, and fine bas-reliefs. The walls are covered with very numerous pilasters, large and small, curiously disposed, and with sculptured panels and carved ornament. The rich marbles which ornament the church are largely due to the spoils of other buildings. Alberti commenced his work in 1450. It displays his characteristic scholarship and beauty of proportion and detail, and must have had great influence on the Early Renaissance in Northern and Central Italy. We give illustrations showing the interior of the nave and two of the chapels. An illustration of the exterior, from Gally Knight's "Italian Architecture," appears in Fergusson's "History of Modern Architecture," 3rd edition, vol. i., p. 65.

ST. JOHN, HIGH WYCOMBE.

THIS church is about to be erected to form the centre of a new district in the rapidly growing town of High Wycombe. It will be situated close to the Aylesbury-road, at the western end of the town, and about half a mile from the old church.

The materials will be local bricks and tiles. The chief characteristics of the plan are the single span nave and the arrangement of the sanctuary and east window. Close to the eastern wall a lofty factory is likely at any time to be erected, and the east window is accordingly set back and elevated over the sacrarium arch, a rich reredos taking the usual place of the window. In a recent competition among local and other contractors Mr. Flint, of High Wycombe, was successful.

Mr. W. D. Caröe is the architect. The drawing is exhibited at the Royal Academy.

S. MARIA DEI MIRACOLI.

THE sketch we publish this week is of the doorway in the principal front. The church was built about 1480 by Pietro Lombardo, who also designed some portions of it. It is the most perfect piece of Renaissance architecture in Venice. Very small, it is faced inside and out with marbles of delicate contrast, to which age has lent additional charm, and its proportions are exquisitely marked by the dark colour of the cornices and pilasters.

The church was only opened to the public a few years ago.

S. MARIA DELLA SALUTE.

THIS church is known to every visitor to Venice as one of the landmarks of the Grand Canal. Though it is not a very remarkable piece of architecture, it possesses the merit of looking well from every point from which it can be seen. It was built in 1631, under the direction of Baldassare Longhena.

The present sketch was taken from the landing steps of one of the hotels on the Grand Canal.

THE INSTITUTE OF BUILDERS' ANNUAL DINNER.

THE annual dinner of the Institute of Builders was held on Wednesday evening at the Trocadero Restaurant, Piccadilly. Mr. Chas. Wall, the President, was in the chair, and among those present were Colonel Stanley G. Bird, Messrs. W. J. Locke (Secretary of the Royal Institute of British Architects), H. J. Moore (Master of the Masons' Company), Basil P. Ellis, S. Bolton, W. Carpenter, G. A. Wall, H. Wall, E. White, L.C.C., F. Wall, A. Boden, W. F. Wallis, F. G. Wallis, R. Preston, M. Sprigg, A. Duffield, J. Bell, F. S. Bywaters, J. Carmichael, A. Ritchie, J.P., F. G. Dove, F. L. Dove, J. D. Greenwood, L.C.C. (past-President), G. Edwards, H. Holloway, W. Hill, T. Hall, H. Smith, A. Dickins, C. O. King, J. W. Garnham, R. S. Henshaw, G. R. Kett, W. T. Tapper, W. F. King, C. King, H. Knight, L. J. Maton, G. Norris, J. Milsom, W. Nicholson, A. Dixon, F. A. Nightingale, A. E. Parker, H. A. Heffer, A. Willick, A. B. Jackson, T. W. Farthing, A. Phillips, J. Randall, A. F. Randall, E. S. Rider, E. Strange, W. Shepherd, E. Shepherd, H. P. Shepherd, and A. W. Turnball.

After the loyal and patriotic toasts,

Mr. Edward White, L.C.C., submitted "The Institute of Builders and the President." He said he was not able to decide as to whether this toast had been entrusted to him because he belonged to the London County Council—which body had done its best to do without the services of the builders and failed—or whether it was because he was a friend of the President. He was not intimately acquainted with the objects of the Institute, and had thought that, perhaps, among other things, papers might have been read by members to induce working men to give a fair return for their weekly wage, or to put an end to the stupid and onerous conditions in the building contracts of the London County Council. If such papers had not yet been introduced, no doubt they would be in future. The London County Council had spent something like 200,000*l.* of the ratepayers' money with the avowed object of securing the large profits that flowed into the pockets of the builders. Three years ago they held an inquiry, in the course of which Mr. Holloway, a member of the Institute, gave important evidence. At the time the Works Department of the Council had been in existence five or six years, and the result of their efforts was that after expending the capital and the sum of 20,000*l.* per annum for maintenance and management they had succeeded in showing a loss on the estimates of 3,000*l.* That was considered to be a very serious matter, and a special inquiry committee was appointed to endeavour to ascertain the cause and to try to find out whether it could be avoided in the future. They found, according to the last report, that after three years' more trading the Works Department had managed to increase their total loss from 3,000*l.* to 65,000*l.* He had called into question all along as to whether it was the wisest policy to endeavour to dispense with builders, but he was like a voice crying in the wilderness—they did not pay any attention to him. He was not prepared to contend that the profits which builders made were not commensurate with the trouble they had and the capital they invested, and he thought the Council and every other public body should carefully consider whether they were able and entitled to dispense with a body of men who were deserving of every consideration, and who were not dishonest, as certain members of the Council had held them up to be. He was glad that master builders had come to the conclusion—and they had been a long time doing so—that their strength lay in combination. They had had a very important lesson set them by the working men, who had been able to achieve so much by this means. However, by combining they would be able to hold their own against the organisation of labour. The building trade stood in a better position to-day towards the workers than ever before, and their combination would not only be to their own advantage, but for the benefit of the men themselves. There were many members of the London County Council who were altering their opinion with regard to the Council undertaking its own work, and it was quite clear that the jobs undertaken by the best class of builders were more to the interest of the ratepayers and to the Council, because, while the work was turned out in every respect as good as when done by the Works Department, it was carried out very much cheaper. It was a great, important, and far-reaching question, inasmuch as it affected the great housing question. Recent experiments had shown that where the Works Department had been unable to erect buildings within the estimates of the architect, and the work had been given to highly respectable firms of builders, the cost had been well within the estimates. This was of advantage not only to the ratepayers, but to the class of persons who would inhabit these dwellings, because the greater the cost the higher must be the rent.

The President, in reply, urged the advisability of recruiting among the younger members of the building trade to induce them to join this Institute, the aims of which were well worthy of consideration. In these days a builder must be something more than a builder—he must be a surveyor and a lawyer as well, or he must have one at his right hand. In reference to the question of equitable contracts, he mentioned that in stone work the Council wanted it to be measured according to the bulk of displacement which would take place in water, which meant that the more work a builder put into a piece of stone the less he would get for it. An equitable contract was of advantage both to the client and the builder. If a builder felt that he had an equitable contract he could work far more comfortably and with less friction; but if, on the other hand, his contract was most unfair, he was entitled to get over it as soon as possible. It was most unfair to try to harass builders in their work. They had had many difficulties with their men, but, happily, there was a lull now, and he thought that the leaders of the working classes were coming to the conclusion that it was far better to come to terms with the employers than to irritate them. Employers only wanted a fair day's work for a fair day's money, and that was to the advantage of all.

Mr. William Shepherd proposed "The Architects and Surveyors." He believed that at the present time the members of the architectural profession had many more opportunities to distinguish themselves than they ever had had in this country. Those who took an interest in architecture could see by modern buildings which had been erected in our streets great evidence of the highest ability of the members of the profession. With regard to the proposed memorial to the Queen, he regretted very much that there had not been an open competition. It was a pity that the choice was limited to so few architects, and he considered that the principle should have been followed of throwing open the competition to all the members of the profession in the world. No doubt most of the money would be given in the City, and the general opinion there was undoubtedly in favour of an open competition. He hoped that in future the contracts between builders and their clients through their agents, the architects, would be more equitable and fair, and certainly every effort had been made by this Institute to bring about that result. Unfortunately, they had not yet been able to come to an agreement, but they still hoped that it might be possible to frame conditions of agreement between the cient and the builder which might be accepted as equitable on all sides. He coupled with the toast the name of Mr. Farthing, a quantity surveyor. Some architects seemed to regard quantity surveyors as a kind of necessary evil, but he looked upon them as forming an essential element in the building industry. He believed that they formed the very best men to adjudicate in disputes or differences which might arise on building contracts.

Mr. Farthing, in reply, referred to the late Queen's Memorial, and said that he thought the competition should be open to English-

men and colonists, but he drew the line at foreigners.

The President then proposed "The Visitors," which was responded to by Mr. Ritchie.

This concluded the toast list.

EXPORT TIMBER TRADE OF SWEDEN.

ACCORDING to a report prepared by Mr. MacGregor, British Consul, on the trade of Stockholm and the eastern coast of Sweden, for 1900, the year turned out most successful for both owners of forests and of sawmills. The demands for redwood, as also for whitewood of the larger dimensions, were good during almost the whole year, so that exporters were enabled to dispose of their stocks easily and at rising prices. The same favourable state of things cannot be said to have existed with regard to battens and the smaller dimensions of wood, for which good prices could not be maintained. Importers in the United Kingdom, as a rule, had not such a profitable year. In order to keep up the stocks in hand they had to purchase at artificial prices, and in a number of instances for sales f.o.b. they were obliged to pay the constantly increasing rates of freight that were ruling during the summer and autumn months. These circumstances combined made it difficult to obtain satisfactory results. During the course of the year the stocks offered for sale for first open water showed an increased proportion of smaller dimensions. This is said to be attributable to indifferent management of the forests, and it is supposed that the quotations for the year 1901 will suffer in consequence. At a meeting of the Sawmill and Wood Export Association held a few weeks ago the report presented showed that, although the quantity of sawn timber was less in 1900 than during the four previous years, the export value of the same was undoubtedly the highest known since 1874. Results would have been still better, it is believed, had it not been for the war in South Africa and the troubles in China. The actual quantity exported to South Africa is given as 4,600 standards more than in 1899. It is confidently expected that great quantities of timber will be required to replace numerous buildings destroyed during the war in South Africa, and that the cessation of hostilities there will immediately have a favourable effect upon the Swedish timber trade. The export from Sweden of planks, battens, and boards, planed and unplaned, during 1900 was 1,009,448 standards, as compared with 1,026,692 in 1899. Of the total, by far the largest proportion, viz., 450,887 standards, was shipped to the United Kingdom.

Mr. Carrick, Vice-Consul at Gefle, states that there the rise in the prices of sawn and planed wood continued until about the middle of 1900, when the difficulty experienced by the importers of the United Kingdom and other consuming countries in obtaining tonnage to remove their goods suddenly arrested further purchases. This dearth of tonnage caused freights on wood and other goods to rise to a higher point than had been reached for the last fifteen years. So much wood had, however, been sold by shippers for first open water and summer delivery prior to the advance in freights, that they were almost independent of the market for the remainder of the shipping season, and little actual fall in prices occurred before the close of the navigation. The quantity shipped—viz., 129,326 standards—was only about 6,000 standards in excess of that for 1899; doubtless, appreciably less than would have been the case had not the scarcity of tonnage intervened. As circumstances now are, sawmill owners and shippers have to carry over to the new season considerable stocks produced under the combined influences of expensive standing wood and dear labour. Mr. Carrick adds that at the time of writing a much smaller proportion of first open water (1901) stocks had been sold than is usually the case, and shippers, by refusing to meet the demands of British and Continental importers for some modification of prices, are running the risk of causing not only stagnation in business, but likewise considerable losses to themselves further on in the season. The unexpected prolongation of the war in South Africa is also hindering the sale of wood goods to that quarter—now a rather important outlet for certain dimensions and qualities.

The quantity of wood shipped from Lulea (writes Mr. Vice-Consul Westerberg) during 1900 showed a considerable decrease, chiefly as regards balks and square timber. A good many buyers, on account of the heavy freights and the scarcity of suitable tonnage, preferred to let the goods they had bought remain in the hands of the seller till another year; 1901 has opened with somewhat lower values for both red and white wood, and especially for smaller dimensions.

Reviewing the course of the wood trade in Hernosand for 1900, Mr. Vice-Consul Burchardt says it is to be regretted that the close of the season has brought some disappointment with it, although on the whole the year was one of high profits for exporters. While the consumption of timber for the previous three years had been steadily increasing, production, especially in Sweden, has remained stationary, or even (where the large dimensions are concerned) been retrogressive. Stocks are therefore generally light both in exporters' and importers' hands. Selling was started in October by buyers practically acceding without any serious opposition to the prices demanded by shippers, which represented considerable advances on those that were current a few months previously. The buying fever extended rapidly, and British buyers, in competition with the Continental importers, most effectually assisted Swedish exporters in raising their quotations. After the turn of the year a certain quietness came over the wholesale trade, most exporters having by that time sold as much as they could dispose of early in the year, with all the uncertain elements regarding logging and floating, which exporters must take into consideration when selling summer and autumn goods. After the end of March, however, the current of business began to be seriously checked, owing to the practical absence of tonnage on offer for removing the goods already purchased, although the prices maintained their good position throughout the year in consequence of the small quantities that were unsold in most of the leading stocks. Mr. Burchardt concludes that "the timber export from Sweden has probably yielded to the exporters larger profits than they have had during any previous year. It is to be supposed that the prices have reached their culmination, and a fall during 1901, as regards smaller dimensions, will doubtless take place. The prices of deals, on account of the limited supplies of larger dimensions, may still be expected to stand firm."

THE PRODUCTION AND CONSUMPTION OF ZINC.

MR. ERSKINE, the British Vice-Consul at Chicago, has collected for the Foreign Office a great deal of information as to the zinc industry in the United States and elsewhere. From his report it may be gathered that the approximate yield of zinc ores in the United States for 1900 was about 425,000 tons of 2,000 lbs., of which 125,000 tons were exported to Europe. The weight of zinc products in the whole of Europe and the United States for the year 1900 was 520,000 long tons, as compared with 361,019 long tons in 1890. During the last fifteen years the European production has increased by 38 per cent., and that of the United States by 187 per cent. These figures not only show the extraordinary expansion in the use of zinc in the past few years, but indicate a continued increasing demand in the future. When it is furthermore borne in mind that for commercial purposes zinc was almost unknown a century ago, that until half the nineteenth century had passed its use was infinitesimal, and that its ores were considered a curse to the miners when found with lead and other ores on account of the trouble given in separating one from the other, this expansion is still more an indication of future demands. Some years ago, hundreds of thousands of tons of this ore could be found lying in the deads both in the Old and New Worlds, and the variety known as "dry bone" has been extensively used for roadmaking in Wisconsin. The United States' production of zinc oxide, nine-tenths of which is got from the ores direct, has increased 467 per cent. since 1880, and its popularity has spread so much that the largest consumers now complain they are unable to get a supply equal to their requirements. About 85 per cent. of this product is used in the manufacture of paint, while the remainder is used for floorcloth, table-baizes, and wallpapers, and enters into the manufactures of indiarubber, earthenware glazing, ointment, and medicine. In seeking the cause for this phenomenal increase in consumption of zinc products for the manufacture of paints, and in examining the statistics of the production of white lead it is found that the newer zinc products are fast taking the place of the lead, or at least that while the zinc products consumed in paint manufacture were in the United States fifteen years ago only one-sixth of the total quantity of lead used, now the zinc is only less by one-half. These figures show the increasing popularity of the new material, for while lead has been used in paint for centuries, zinc is said to have been first used in this way in 1847 by Leclaire, a painter in Paris, who recognised its utility and colour. "Zinc paint" (the Vice-Consul writes) "has a beautiful whiteness, is durable, is non-poisonous, gives off no poisonous gases, and has become indispensable, as it enables manufacturers to produce the most delicate tints. It is light and bulky, and in combination with other materials adds value to them. When cleaned and sent to the furnaces, the carbonates and silicates will assay for metal about an average of 38 per cent., and the sulphides average about 55 per cent. In 1894 a 60 per cent. ore went as low in price as 3*l.* 14s. 6d. per ton, while, in 1899, the same quality of ore rose to over 10*l.* 10s., and in February, 1901, was about 4*l.* 12s. The very high prices during 1898 and 1899 caused an extraordinary development in zinc mining, with the usual result that what was thought in 1896-97 to be a prospective ore famine was changed to a considerable surplus, and for the last year the mine owners have been facing the problem, especially in the Joplin district in Missouri, of how to operate successfully about 500 mines, when less than half of that number could supply all the furnaces now in blast in the United States, and arrangements are being made to ship large quantities of ore to Europe. It is reported on all hands that the European mines are well nigh exhausted, and that some of the Continental smelters are to move to the United States in the near future. There are enormous deposits throughout the United States, and while some are very poor many are very productive, and great care has to be taken in investing, as is shown by the recent failure of the International Zinc Company."

BOOKS RECEIVED.

THE PRACTICAL GUIDE TO THE PUBLIC HEALTH ACTS. By T. W. Hime, M.D. (Baillière, Tindal, & Cox.)

JOURNAL OF THE SANITARY INSTITUTE. April 1901. (E. Stanford.)

HOMELAND HANDBOOKS: TEIGNMOUTH. By Beatrix F. Cresswell. (The St. Bride's Press. 6d.)

Correspondence.

To the Editor of THE BUILDER.

QUEEN VICTORIA MEMORIAL.

SIR,—The fine scheme you sketch in your issue of April 13 for a monumental avenue from Marlborough Gate to Buckingham Palace leads me to hope that this unique opportunity for improving St. James's Park may not be missed.

Here is a spot which, at a comparatively small outlay, might be made one of the most beautiful gardens in Europe. At present it has no symmetry, no dignity in the neighbourhood of its surrounding buildings, while internally it is intersected at all angles by ugly footpaths.

Your suggestion, sir, that a direct road should connect Marlborough-gate with Queen Anne's-gate is a good one, and if this road bifurcated immediately it had crossed the ornamental water and swept east and west into Birdcage-walk, the distance cabs would have to travel from Victoria to Pall Mall would not be materially increased, while the Palace precincts would, as you observe, be suitably secluded.

Mr. Bodley's poetic conception of the Victoria Memorial rising out of water would best be realised in connexion with your idea of a combined ornamental canal and monumental avenue.

But why stop here? The Horse Guards Parade is the finest architectural piazza in London. If it could be seen at all from the park it would present a series of the most impressive architectural views we possess, but the ground has been banked up and planted, apparently with the special object of excluding (especially in the summer) all view towards, and of the park itself, from the Parade.

The axis of the Parade happens exactly to intersect the Mall-avenue at Marlborough Gate, which points to a circus at this intersection from which another broad avenue should lead direct through the Horse Guards arch to Whitehall. The park boundary of the Parade should be treated systematically and monumentally with piers and fine wrought-iron gates and railings, as roughly indicated on the sketch plan appended by way of explanation. The triangle thus formed should be open to the Mall and be well laid out in formal flower beds.

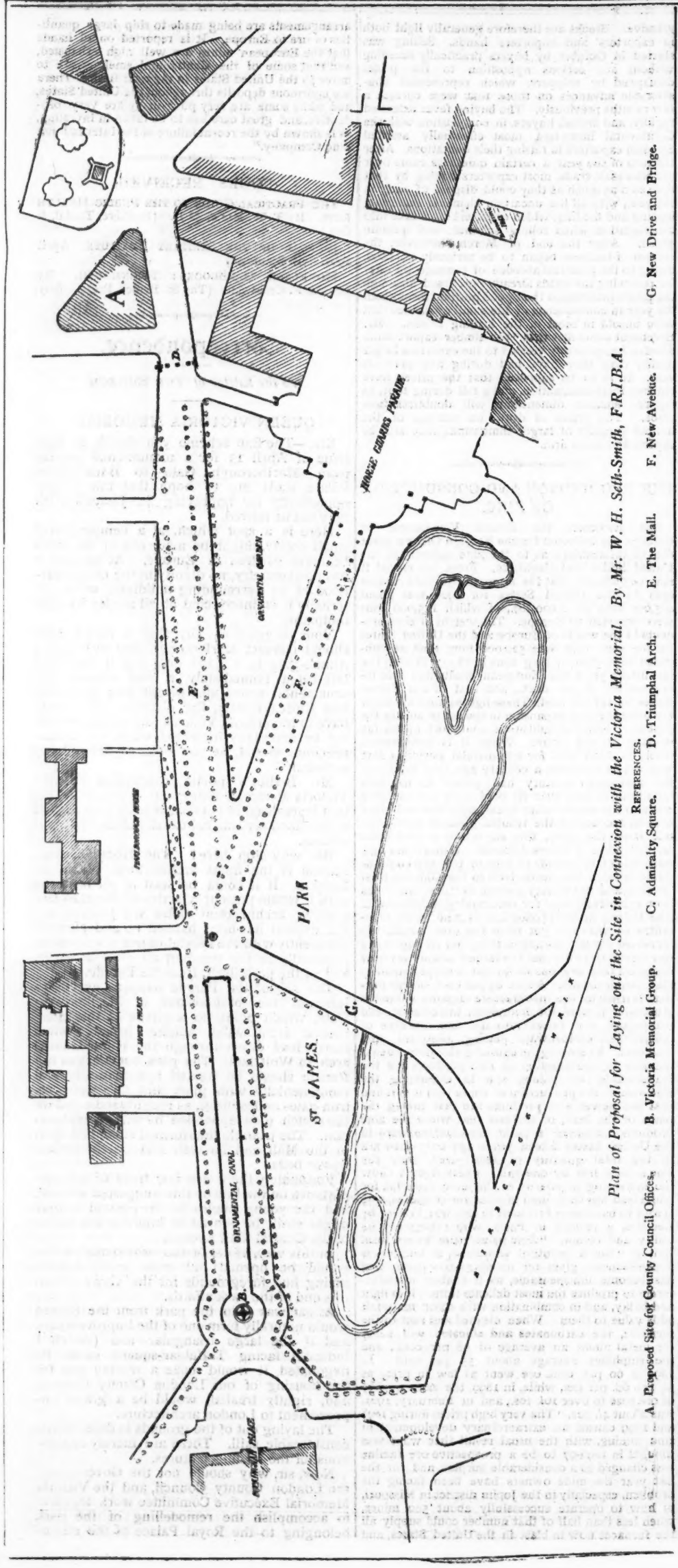
Fortunately there are few trees of any importance on the line of this suggested avenue, and the young planes in the present avenue might easily be moved to improve the width of the Central Mall Avenue.

In this way, views of the ornamental water would be opened out from many points, giving fine foregrounds for the views which this end of the park affords.

A gateway into the park from the Strand would naturally form one of the improvements, and if the large triangular site (which I indicate) facing Trafalgar-square could be negotiated, it would make a worthy one for the housing of our London County Council, and, rightly treated, would be a grand improvement to London architecture.

The laying out of the grounds in detail needs considerable skill. These are merely suggestions for the leading features.

Now, sir, why should not the Government, the London County Council, and the Victoria Memorial Executive Committee work together to accomplish the remodelling of the park belonging to the Royal Palace of the metro-



polis of this Empire with a view to marking more effectually the nation's devotion to England's greatest Queen and the improvement of English taste at the opening of the new century? W. H. SETH-SMITH.

SCIENCE AND ART DEPARTMENT'S EXAMINATION IN BUILDING CONSTRUCTION.

SIR,—Kindly allow me to supplement Mr. Adam's letter on this subject in your last issue by calling attention to a far more serious aspect of the paper, viz., the large number of instances in which the questions are totally at variance with the Department's own syllabus. This syllabus prescribes very carefully and minutely the various points which the student is expected to study for the several stages; but the syllabus is one thing and the examination—during recent years—quite another.

In the elementary stage, for instance, this year, Questions 1, 3, 8, 9, could only be answered by those who had prepared for the advanced stage; Question 2, by an honours student; and in three other instances "explanations" are required, a thing only required in advanced and honours. From this it will be seen that a student properly prepared according to the syllabus stands no chance of getting full marks.

In the advanced stage, Questions 21, 23, 24, 27, 30, are all clearly for honours students; see Question 43 in honours, which is almost an exact repeat of 24 in the advanced, while the latter half of Question 28 is outside the scope of any stage in this subject.

In Honours I. questions on hot-water heating, electric lighting, and on sanitation are given, but the syllabus is quite silent on these points. As regards the electric lighting question insufficient data are given; no electrician could possibly quote a price under such conditions.

In Honours II. the absurd nature of two questions has already been touched upon by Mr. Adams, but he failed to drive home the grossly unfair character of Question 69, which, in brief, is—design a dwelling, take accurate quantities, and price them. In the first place the syllabus relegates design to the practical stage of the examination; in the second neither quantities nor prices are even mentioned in the syllabus as points to be taken by students. On the question of time allowance, there is here at least a half-day's work for an architect, one day's work for a quantity surveyor, and another half-day's work for a builder's estimator, even when quotations for materials have been got in. Surely it was never intended that quantities and prices should form part of this examination, which is purely one on construction. Question No. 70 is another instance of totally inadequate time being allowed for an answer; it would take an average architect quite two days in the ordinary course of business. In this question a colour decorative scheme is required; but again no mention in the syllabus.

If this year's questions are to be any guide, we may expect in the future to be examined in—legal matters affecting the trade, designs for furniture, pianos, overmantels, stoves, stained glass, paper-hangings, and laying out gardens, as they are all more or less connected with buildings.

Surely it is not too much to ask the Department, in the interests of the education they are supposed to foster, to either adhere to their syllabus or alter it. FAIRPLAY.

SIR,—Mr. Henry Adams is to the point when he states that "the examination held by the Board of Education in Building Construction on the 11th inst. has caused a shock to. . . . students throughout the country."

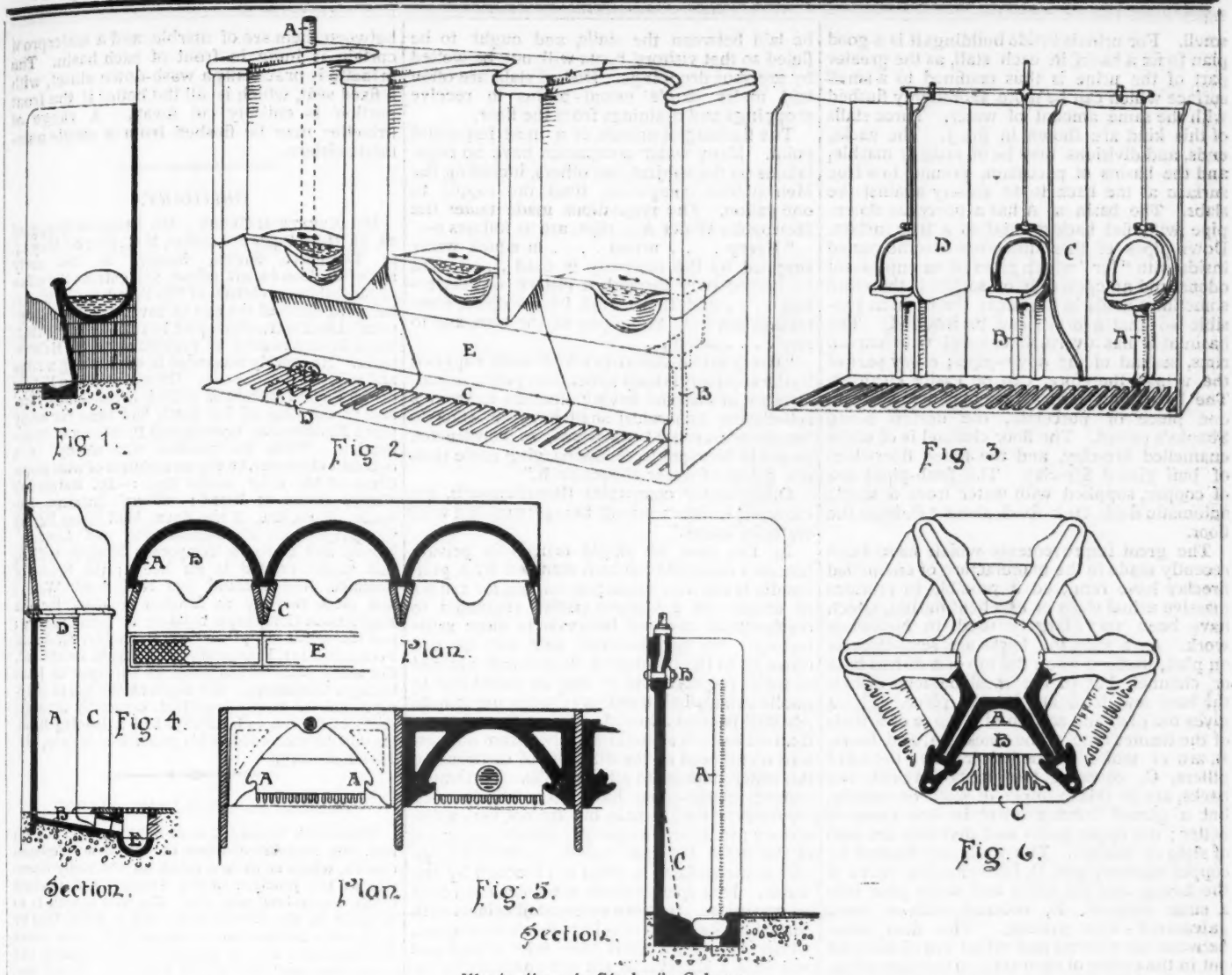
As one of the students who sat, I consider, then, many of the questions were hardly, to say the least, what one would expect, having regard to previous papers.

My object in writing, however, is to find out what is a "shiner." I have asked men whose experience led me to believe that they would know, but beyond humorous replies I have not received an answer. Will one of your readers kindly oblige?

Of course it cannot be a good person in a bad world; neither is it at all related to the celestial sphere, although, for all some know, it might be.

J. W. KAMPE.

METHODIST CHAPEL, SHIREBROOK, DERBYSHIRE.—The memorial-stones have just been laid of a Methodist church at Shirebrook. The building will be a two-story structure. The chapel, on the upper floor, will have seating accommodation for 210. This will be capable of extension to 260 seats by utilising the two vestries, which will be separated from the main building by movable partitions. A classroom will also be provided on the lower floor with a seating capacity of eighty, and the remainder of this floor contains rooms for storage. The exterior of the edifice is of red brick with stone dressings and semicircular red-brick arches to the windows. The contract for the building has been let to Mr. W. H. Reavill, of Ollerton, at 700*l.* 10*s.*, and Mr. Joseph Perkin, of Shirebrook, is the architect.



Illustrations to Student's Column.

The Student's Column.

SANITARY FITTINGS AND PLUMBING.

19.—URINALS (*Continued*).

TROUGH URINALS.—These consist, as a rule, of a glazed fireclay trough with a weir at one end so that a certain quantity of water is retained in the trough, and an inlet at the other end for the supply of fresh water from a flushing tank. They are therefore very similar to trough-closets, but smaller; the back may with advantage be higher than the front, in order to reduce the risk of fouling the wall, and the front edge ought to slope inwards, so that droppings will not run down the front and on to the floor. The dilution of the urine is a point in their favour, but they are seldom used now for high-class work, as the retention of the urine causes furring, and as users do not always discharge all the urine into the trough, but allow some to soil the front of the trough or the apron and floor below it. Floor-channels and draining slabs must be fixed under these as under urinal basins. Painted cast-iron troughs are sometimes used, but the paint is soon destroyed. Enamelled iron is better. Slate trough-urinals are also made, but the joints and angles are very objectionable.

Fig. 1 is a section of a trough urinal of ordinary form with enamelled fireclay trough and capping, slate apron, back and divisions, and salt-glazed floor-channel. Adams's trough-urinal (fig. 2) is a great improvement. The stalls are 2 ft. 3 in. wide from centre to centre. The trough is of glazed ware, and has a projecting lip in the centre of each stall. The backs are also of glazed ware, semi-circular on plan, with projecting divisions of the same material, and the whole range is finished with glazed-ware capping. Water is retained in the trough by means of a weir at one end, and at the other end the flush-pipe A is connected. When the flush-tank is discharged, the water passes down the pipe A, along the trough, over the weir, and down the waste-pipe B into the floor-channel C, and thence to the gully and trap D. The trough and channel are therefore flushed by the same discharge. The fluted floor-slab and channel are formed in one piece of glazed ware. The apron slabs at E are also of glazed ware. The range would be all the better if part of the flush were conveyed to a distributing nozzle in the back of each stall, so that the backs would be automatically cleansed as well as the trough and channel. In some trough urinals the outlet of the floor channel is at the same end as the outlet of the trough, and part of the flushing water is conveyed to the upper end of the channel by means of a small pipe connected to the main flush-pipe; this avoids the flooding of the channel with urine-polluted water from the trough.

Stall Urinals.—Urinals of this class are most commonly fixed in ranges. Formerly any kind of stone was considered good enough for the purpose, and many urinals still in existence consist of plain slabs of York stone arranged as backs, ends, and divisions. Stone of this kind soon becomes foul, and is quite unsuitable. Even slate and marble, dense though they are, absorb some portion of the urine. The best material for urinal stalls is undoubtedly enamelled fireclay, but care must be exercised in selection, as these large pieces are often damaged during manufacture. Salt-glazed fireclay is used for cheaper work, and some makers are now able to produce ware of this kind with a very smooth surface. Cast iron is often used for public urinals in the streets, but the ammonia given off by the urine soon destroys the paint, and causes corrosion of the metal.

Stalls composed of flat slabs of stone (including, of course, slate and marble) are difficult to keep clean, on account of the numerous angles and joints, and are not suitable for use in buildings. Slate urinals are, however, often used in the playgrounds of schools, in the open areas of railway stations, and in the yards of factories and other buildings, where a fairly satisfactory urinal is required at a moderate cost. Slabs should be provided for the back, ends, and divisions. Aprons were formerly fixed to prevent droppings falling on to the floor, but are now seldom used, as they cannot possibly be flushed by the sparge pipe, and as they interfere with the washing of the floor. The stalls vary in width from about 18 in. for children to 24 in. for adults, and in height from about 3 ft. 6 in. for children to 5 ft. or 5 ft. 6 in. for adults. The division slabs project as a rule about 18 in. from the wall, and the end slabs from 18 in. to 24 in. A projection of 12 in. or 15 in. is, however, better for the divisions, as it enables users to stand closer to the back, and reduces the floor area soiled by droppings. The slabs are generally about 1½ in. thick, all edges being rounded and all joints made tight with red lead. Holdfasts ought to be of copper, as iron is very soon corroded. It is not a good plan to carry the divisions down to the floor, as the angles thus formed are difficult to keep clean. Greater cleanliness is obtained by fixing the divisions about 15 in. or 18 in. above the floor, as shown at D in fig. 3; they can be secured by building them about 4½ in. into the wall, and grouting with neat cement. Another form of division is shown at C in the same figure.

The slate used for urinals ought to be rubbed and either oiled or enamelled. The enamel is not very durable. An objection to slate is that it affords a convenient surface for the obscene and inane scribblings of fools. The objection can be removed by covering the slate periodically with a mixture of coal-tar and naphtha, which has the further advantage of preventing absorption.

Thick sheets of opaque glass have occasionally been used instead of slate, but have not proved satisfactory. Slabs of glazed fireclay have been used with much better results. Many urinal stalls in hotels and clubs are constructed of polished marble slabs, but, whatever the material may be, the numerous joints and angles, which cannot be avoided in slab urinals, are a serious disadvantage. As the sparge-pipes as a rule are only continued along the back, the divisions, which often receive a considerable amount of urine, are not adequately flushed.

The stall urinal constructed of slabs exposes a large surface to the action of urine, and is therefore difficult to keep clean and free from

smell. For urinals inside buildings it is a good plan to fix a basin in each stall, as the greater part of the urine is thus confined to a small surface which can be more thoroughly flushed with the same amount of water. Three stalls of this kind are shown in fig. 3. The backs, ends, and divisions may be of slate or marble, and the basins of porcelain, ground to a true surface at the back to fit closely against the slabs. The basin at A has a porcelain down-pipe with flat back ground to a true surface. Down-pipes of this kind often become coated inside with "fur" which gives off an unpleasant odour, and an open arm or socket is therefore sometimes made in it as near the basin as possible so that a brush can be inserted. The basin at B has a vertical channel with curved rims, instead of the down-pipe; every part of the urinal, therefore, can be easily cleansed. The basin and vertical channel are made in one piece of porcelain, the design being Shanks's patent. The floor channel is of white enamelled fire-clay, and the fluted floor-slabs of buff glazed fire-clay. The flush-pipes are of copper, supplied with water from a single automatic flush tank fixed about 7 ft. from the floor.

The great improvements which have been recently made in the manufacture of enamelled fireclay have rendered it possible to produce massive urinal stalls of excellent design, which have been very largely used in high-class work. As a rule, the backs are semi-circular on plan, made to fit on the top of a dished base or channel, but in the most modern urinals the base and back are in one piece. Fig. 4 gives the plan and section of a range of urinals of the former type. The backs, A, and bases, B, are of white enamelled fireclay; the front pillars, C, covering the joints between the backs, are in this example of slate or marble, but a glazed fireclay pillar in one piece is better; the upper backs and divisions are also of slate or marble. The stalls are flushed by copper sparge-pipes, D, following the curve of the backs, and the urine and water pass into a sunk channel, E, covered with a loose galvanised-iron grating. The floor slabs between the grating and urinal are of slate cut out in the centre of each stall, so that droppings will fall into the base of the urinal. The numerous joints are objectionable. The sunk channel is also apt to become foul.

The urinals shown in fig. 5 are of more modern design, the back and base being in one piece of white enamelled fireclay, measuring about 25 in. by 14 in. by 3 ft. 8 in. Slate or marble divisions are used to give the projection and height necessary for privacy. Lips are formed at AA to retain the flush within the curved back. Instead of a sparge pipe, a distributing nozzle (B) is used. A single outlet for the entire range is provided in the bottom of the channel. In other urinals a front outlet is formed in the base of each stall, and connected by a short bend to a drain under the floor. An objection to this urinal is that the stalls are unduly contracted between the lips AA, and persons who have been enjoying themselves not wisely but too well, will almost inevitably soil the angles outside the lips. It is better to obtain the full projection by adopting a deeper fireclay back with fireclay front pillars, as shown in fig. 6.

In some conveniences, where the walls are occupied by water-closets and lavatories, independent or pedestal urinals must be used. These are often hexagonal in plan, as shown in fig. 6. In this, as in many other modern urinals, the backs are made with a forward splay, A, towards the bottom, as this shape reduces splashing and is more thoroughly flushed. A splay of this kind is shown in section in fig. 5 by the dotted line C. The flushing cistern is fixed above the centre of the urinals. The channels are shown at B and the fluted foot-slabs at C. Bolding's "Laydas" urinal is a pedestal trough urinal, the trough having six lips, with slate or marble divisions between. The cistern is placed over the centre, and actuates a siphon by which the contents of the trough are periodically siphoned out.

In all ranges of urinals, except those with front-outlet bases, floor-channels are required. The best material for the purpose is enamelled fire-clay, stone and concrete being too absorbent and iron being soon damaged by rust. The channels must be bedded on concrete, and jointed with neat cement. The floor ought to be laid to fall towards the channel about ½ in. per foot, so that the water will quickly drain away when the floor is washed with water from a hose-pipe. Glazed floor-slabs ought to be laid between the stalls, and ought to be fluted so that visitors' boots will not be wetted by previous droppings. Dished slabs are often laid under single urinal-basins to receive droppings and drainings from the floor.

The flushing of urinals is a most important point. Many water companies have no regulations on the subject, but others, including the Metropolitan companies, limit the supply to one gallon. The regulations made under the Metropolis Water Act, 1871, are as follows:—

"Every . . . . urinal . . . . in which water supplied by the company is used . . . . shall be served only through a cistern or service-box . . . . and there shall be no direct communication from the pipes of the company to any . . . . urinal. . . ."

"Every urinal-cistern in which water supplied by the company is used (other than public urinal-cisterns, or cisterns having attached to them a self-closing apparatus) shall have an efficient 'waste-preventing' apparatus, so constructed as not to be capable of discharging more than one gallon of water at each flush."

Other water companies (Bournemouth, for example) insist on urinals being "supplied with water by meter."

In the case of single urinals in private houses a one-gallon cistern actuated by a pull-handle is the best arrangement, but for ranges of urinals an automatic cistern regulated to discharge at frequent intervals is more satisfactory. No hard-and-fast rule can be laid down as to the number of flushes and amount of water required, but it may be stated that in public urinals half a gallon of water per minute per stall is often allowed. As a rule, not more than six urinals should be flushed from one cistern on account of the difficulty of distributing the water equally to all the stalls. Perforated copper sparge-pipes have been largely used for flushing stall urinals, but are not very satisfactory; splashing frequently occurs and some of the holes become choked, so that a large part of the surface is often not touched by the water. Iron sparge-pipes are soon destroyed by corrosion. In more recent stall urinals with curved backs a distributing nozzle is adopted, which is simply a short tube with closed end and with a transverse slit cut obliquely in the lower half; this gives an excellent flush, and distributes the water over the whole of the curved surface below the nozzle. It is also much neater and cleaner than a sparge-pipe. Care should be taken that the nozzle is of such a type that it can be removed without disturbing the urinal.

Urinal cisterns are often constructed with a copper or brass framework and glass sides, so that the attendant can see at a glance whether they are working properly or not. Enamelled fireclay is an excellent material, and marble cisterns with glass panels are also used. Iron is not satisfactory for use in urinals unless vitreous-enamelled. It is best to regulate the supply of water so that the cisterns will discharge their contents at fixed intervals; the regulation can be effected by means of a stop-cock on the supply-pipe or by a perforated disc in the union, the latter being required by some water companies. A controlling vessel is sometimes fixed in connexion with trough urinals, by which the number of flushes is automatically regulated according to the usage of the urinals. It economises water, but may lead to furring, as a considerable quantity of urine may remain in the troughs for a long period. In other cases a treadle action is adopted, the flush being started by the weight of the person standing on the grating, but the boxes under the gratings are difficult to keep clean, even when they are made of enamelled iron, and part of the flushing water is conveyed into them. Cisterns actuated by the opening of the door of the convenience have also been used, but this arrangement leads to waste of water.

Public urinals above ground are often constructed of cast iron, but frequent painting is required to retard the inevitable corrosion caused by the ammonia and water. Sometimes such urinals are constructed of vertical slabs of slate with grooved edges into which iron tongues are fitted, but the shoulders of the grooves are soon burst off by frost and by the corrosion of the iron.

"Urinette" is the name given to a fitting intended for ladies' use. These have been occasionally fixed in ladies' public conveniences, as they occupy less space than water-closets, although they are made on the same general lines. In the underground conveniences in Shoreditch the space allotted to each urinette is 2 ft. 3 in. by 2 ft. 9 in.; the divisions between them are of marble, and a waterproof curtain is hung in front of each basin. The urinette is practically a wash-down closet, with a fixed seat, which is all the better if the front portion is entirely cut away. A range of urinettes may be flushed from a single automatic cistern.

OBITUARY.

MR. EBENEZER GREGG.—Mr. Ebenezer Gregg, of 1A, St. Helen's-place, London, E.C., died on May 14, at Teighmore, Sutton, Surrey. At the early age of thirteen he left school and entered the office of Mr. Sabine, architect, of Old Broad-street, where, before he attained the age of seventeen, he was appointed manager, which post he retained until 1868, when he commenced to practise at 1A, St. Helen's-place. He quickly succeeded in establishing a large and influential connexion. He was elected a Fellow of the Royal Institute of British Architects in 1870, and at the time of his death had been for many years Examiner on Professional Practice and Specification. While his practice was chiefly of a domestic character, he was an architect of wide scope. Some of his chief works were:—Dr. Barnardo's Village Home at Ilford; officers' quarters, ice-house, offices, &c., of the Royal Mail Steam Packet Company, both at Southampton and London Moody and Sankey's Temporary Mission Hall to seat 10,000, erected in six weeks; the Banks of Adelaide, New Zealand, and New South Wales; and more recently as London architect for the Exploration Company's building at Johannesburg; and the works at 71 and 72, Piccadilly, 24, Austin Friars, and 141, Fenchurch-street may be mentioned. For many years he has acted as surveyor to Jesus College, Cambridge. His death at the age of sixty-eight will be deeply regretted, especially amongst students, for whom he always had a helping hand. He will be succeeded in his practice by his son, Mr. Theodore Gregg.

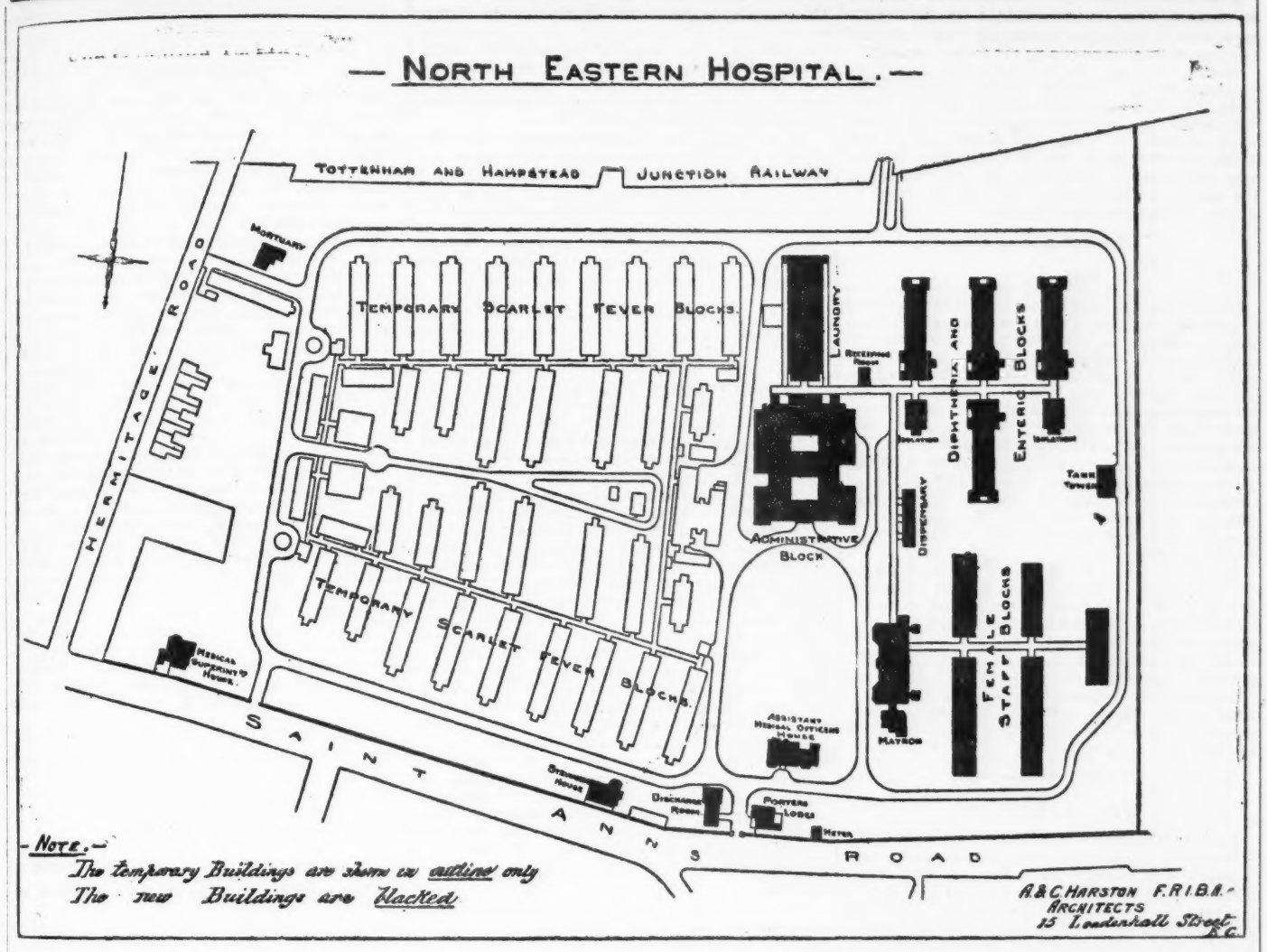
GENERAL BUILDING NEWS.

WESLEYAN CHURCH, SUNDERLAND.—On the 8th inst. the foundation-stone of the new Wesleyan church, which is to be erected on the Holly House site at the junction of the Tunstall and Durham roads, Sunderland, was laid. The new church is to be built in the Gothic style, and is 70 ft. long by 41 ft. wide across the nave, and 65 ft. wide across the transepts, with a gallery in the transepts and down the sides and across the ends. It will seat 800 persons. The spire is 104 ft. in height. The building is faced with Patley Bridge stone and Northumberland stone dressings. The school is 50 ft. by 41 ft., with a gallery on three sides. The gallery can be divided into classrooms by means of revolving shutters. The school will accommodate 500 to 600 scholars. There are several vestries and infants' class and a ladies' parlour. The estimated cost is about 15,000*l.*, including site. Mr. J. Jameson Green, Liverpool, is architect, and Mr. W. A. Lowry, Liverpool, clerk of works; and Mr. J. B. Stott, the contractor.

PROPOSED NEW CHURCH, ABERDEEN.—Plans of new Melville Church, to be erected at the junction of Rose-street and Skene-street, prepared by Messrs. Brown & Watt, architects, Aberdeen, have been laid before Aberdeen United Free Church Presbytery, and remitted to a committee with powers. The designs show an elevation to Skene-street with spire, and also an elevation to Rose-street. In the church there will be sitting accommodation for 765 people, and in the halls in the rear of the building and fronting Rose-street sitting room for 500. The building is to be square, with a circular auditorium, and the total expense is estimated at the sum of 7,000*l.*

CHURCH, AYR.—The new church erected by the Ayr Original Secession congregation as a memorial to the Rev. John Robertson has just been opened. The church occupies a site at the junction of Craigie-road and Dampark-road, facing the new Victoria Bridge. It has been built to the design of Mr. Allan Stevenson, architect, Ayr, at a cost of about 3,000*l.* The style is Gothic, and the building is of Ballochmyle stone. The entrance porch is in the west front, with two double-light traceried windows above. There are small transepts at the north and south sides. The church is seated for about 400. A hall behind the church has accommodation for 200, and the session-house, which adjoins, can be thrown into the hall by folding doors. The other accommodation includes vestry and ladies' room, with lavatories attached. The electric light is used throughout, and the church and hall are heated by hot-water pipes on the low-pressure system. The ventilation is by inlets at walls and windows, and outlets on roofs. The roof is of open timber. The contractors for the work were:—Mason, Trustees of the late Andrew Thompson; joiner, David Milligan; plumber and slater, Wm. Auld & Sons; plasterer, D. & T. Bone; electric light, Wm. Auld & Sons; heating, H. Montgomerie.

CONGREGATIONAL CHURCH, BIRKENHEAD.—The new Congregational church in Old Chester-road, Tranmere, was opened on the 17th inst. The church has been erected on a site to the east of the Old Chester-road facing the Liberal Club, the building being set back from the road, with land



reserved at the rear for future schools. The church consists of nave, transepts, and end gallery, provision being made in the chancel for an organ. There are three entrances to the church, two from Old Chester-road and one from the rear, and accommodation is arranged for over 500 adults. Two vestries are provided. The elevations are late Gothic in design, a tower being arranged on the north-east angle. White Storeton stone, relieved by red Tranmere sandstone, is used for the fronts to Old Chester-road. The woodwork within the building is of varnished pitch pine, and the windows to the main road are filled with leadlights. The contract has been carried out by Mr. Richard Allen, of Birkenhead, the architect being Mr. T. W. Cubbon, Birkenhead.

PROPOSED NEW CHURCH NEAR ABERDEEN.—The architects, Messrs. D. & J. R. McMillan, Aberdeen, have been instructed to proceed with the preparation of working plans for the new United Free church at Cults, in the suburbs of Aberdeen. The site will be a central one in Cults village. The design submitted, which has been generally approved of, is of Gothic type with Scottish features, and is cruciform in plan. There will be a tower on the west and an apse behind the pulpit, where provision is made for an organ; and there will be sitting accommodation for fully 600. There will also be hall, session-house, ladies' workroom, and tea kitchen; and the total cost will be about 4,000*l.*

ALTERATIONS TO COCKS & BIDDULPHS BANK.—This bank, situated in Charing Cross, was built several years since from the designs of Mr. Richard Coad. It is now to be extended into Spring-gardens, where the new front will be. The building now being begun by Messrs. Dove Bros., the contractors, comprises new partners-room, strong-rooms, a considerable enlargement of the bank premises, as well as three floors of offices which will be let. The new front will be of Brackley bricks and Portland stone. The building is fire-proof throughout, the ironwork, &c., being provided by Messrs. Fawcett. The cost will be about 12,000*l.* The design has been prepared by Mr. J. Oldrid Scott.

BUSINESS PREMISES, DUNDEE.—New premises for Messrs. Malcolm Bros., the Dundee auctioneers, have been erected in Commercial-street, Dundee. Mr. J. H. Langlands was the architect, and the contractors were as follows:—Builders, Messrs. James Binny & Co.; joiners, Messrs. Alex. Bruce & Co.; painters, Messrs. Mackay & Son; plumber, Mr. David Brown; electric lighting, Messrs. G. H. Nicoll & Co.; grates and tiles, Messrs. Sinclair & Ewing.

NEW BUILDINGS, NORTH EASTERN HOSPITAL.—The original North-Eastern Hospital consists of a group of temporary buildings hastily erected in 1892, in face of an epidemic of scarlet fever, and intended only to last for one year. The area of the site was then 19 acres, but additional land has since been purchased, and the total is now about 33 acres, including a recreation ground, not shown on the accompanying plan, situated on the south side of the railway. The new buildings, which form the first section of the proposed permanent hospital, are shown black on the plan. They consist of an administrative block, laundry, staff quarters, medical superintendent's and steward's houses, porter's lodge, receiving and discharge rooms, mortuary, dispensary, four diphtheria and enteric blocks, two isolation blocks, and tank tower. The normal number of beds in the reconstructed hospital will be 548. The new buildings provide for diphtheria and enteric patients and eight isolation beds. They also include accommodation for the entire staff of the future hospital. The buildings have been erected by Messrs. McCormick & Sons, whose contracts include all engineering work except kitchen and laundry fittings. The contract amounts were as follows:—Main contract, 113,642*l.*; laundry, 8,865*l.* The kitchen fittings were provided by Messrs. C. Kite & Co., whose contract amounted to 1,050*l.*, and the contract for laundry fittings has recently been let to Messrs. Bradford & Co. at 4,580*l.* The medical superintendent's residence was built by Messrs. Wm. Johnson & Co., of Wandsworth-common, at a cost of 1,968*l.* Messrs. A. & C. Harston, Leadenhall-street, were the architects, and Mr. W. Lawrance clerk of the works.

PRINCE'S THEATRE, MANCHESTER. — Important structural alterations are about to be made to this theatre to suit the requirements of the City Surveyor, and in accordance with the views of the Watch Committee of the Corporation. The proposed alterations will be made mainly to remodel the entrances and provide additional exits. The exit staircase from the gallery into Oxford-street will involve the complete alteration and reconstruction of the front portion of the building, including a new marble staircase to the dress circle, a new entrance hall lined with marble, and a new box office. The circle staircase will open into a lounge on the circle level, from which is entered a new retiring and cloakroom for ladies. The large folding central doors lead directly into the promenade at the back of the circle seats, and the doors on the Oxford-street side of the new lounge will open direct on to the flat roof of the present verandah. The stall staircases will be widened and constructed of concrete, and exit doors provided in the barrier direct into the pit. Other structural changes will be made, notably the improved staircase into the saloon bar, the direct exit therefrom into Bale-street, completion of the present gallery entrance staircase in fireproof material, enlargement of the orchestra, and general improvement of the lavatory accommodation. A scheme has been carefully prepared for the complete heating and ventilation of the theatre, and the building will be fitted throughout with the electric light. Mr. John Bland, of Manchester, is the contractor for the structural alterations. These will involve the redecoration of the entire house in front of the curtain. In preparing a new scheme of decoration the architects have, as a matter of course, retained the proscenium frieze painted by the late H. Stacey Marks, R.A., and which has allied so remarkably the Princes Theatre with the painter's art of the time. The side pictures by the late Mr. Phillips will also be retained; they are in harmony with the frieze and contemporaneous therewith. The ceiling below the central dome will have the main panels filled with figure subjects, suggestive of the art of the Theatre, alternating with portrait heads of those who have contributed to the creation and maintenance of dramatic art. The front of the dress circle tier will be enriched with hand-painted panels, containing scrolls, with the names of dramatists and musicians thereon. The panels of the upper circle tier will be treated in a similar manner, the centres being alternately enriched with the Rose of Lancaster and the three feathers. The gallery front will have a continuous scroll ornament, and the various ceilings will receive careful attention in the way of enrichment. The upholstery will be renewed throughout in a blue tone; the hangings will be of blue plush with gold trimmings, all in harmony with the new act drop painted by Mr. Conrad Tritchler. The new lounge will receive special treatment, and the saloon bar will have a new ceiling, frieze of figure subjects, and rich wall-paper. The contracts for the decoration and upholstery will be carried out by Messrs. J. Binns & Sons, of Halifax, the theatre decorators, and the upholstery has been let by them to Messrs. Turner, Son, & Walker, of Liverpool. The whole of the structural and decorative work will be executed from drawings prepared by the architects, Messrs. Darbyshire & Smith, and will be carried out under their personal superintendence.

NEW HOSPITAL, SUTTON, SURREY.—The foundation-stone of the new hospital was laid at Sutton recently. The new building, which is being erected by Mr. J. B. Potter, of Sutton, from the designs of Mr. Cecil Sharp, architect, will cost about 3,000*l.*, with the furnishing, &c. The central building will consist of a doctor's and matron's room, with bedrooms for the matron and staff over, and there will

be pavilions on each side, divided into two wards each, two of the wards containing four beds, and two two each, thus providing for twelve patients.

HOTEL CECIL EXTENSION.—The block of buildings, having a frontage to the Strand between (old) Ivy Bridge-lane and Carting-lane, is nearly completed. The block has supplanted Salisbury and Cecil streets. It comprises shops, offices, and chambers, erected by Mr. J. Carmichael, builder, after the plans and designs of Mr. Joseph Sawyer, the sanitary arrangements and fittings being by Messrs. George Jennings, Limited.

FOREIGN.

GERMANY.—The German Emperor has sanctioned the plans for building a new museum near the Polytechnic Academy at Charlottenburg, near Berlin, to contain models and copies of architectural and plastic works of art.——Since the closing of the trachyte quarries near the Drachenfels, in the Siebengebirge, that stone has not been so extensively used in the Rhine valley; but recent discoveries have proved the existence of a very similar rock near Kelberg, in the Eifel, which it is proposed to introduce to the market. Trachyte has for many centuries been a favourite building material with Rhenish architects, many of the churches in Cologne, including a great part of the cathedral, being composed of it.

INDIA.—A large stone bridge is about to be erected over the Choorny river, on the Ranaghat-Kishnagar Light Railway, at the suggestion of the Government of Bengal.——The Anglican community of Rangoon are trying to raise a lakh of rupees as a memorial to Queen Victoria to complete the Rangoon Cathedral.——The harbour improvements at Madras are still under contemplation, though Indian engineers are not sanguine that as at present proposed they will be adequate enough for the purpose.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.—Messrs. T. W. Aldwinckle & Son, architects, have removed their offices from 1, Victoria-street, Westminster, to 20, Denman-street, London Bridge, S.E.——Mr. W. J. Morley, architect, of 269 Swan-arcade, Bradford, has taken his son, Mr. Richard Morley, into partnership, and the practice will be carried on in future under the style of W. J. Morley & Son.

ISOLATION HOSPITAL, CHORLEY.—Messrs. Shorland & Brother ask us to mention that the large wards in this building, described in our last issue, are warmed with their central patent Manchester stoves.

HOUSE-RENTS IN STOCKHOLM.—A matter which greatly affects Stockholm at the present time, and helps to make it an extremely expensive place of residence, is (says an official report) the want of sufficient house accommodation. An Inspector of Poor reported last autumn that he feared in the present year things would be worse than ever. As the want of dwellings was very great, and the demand for them still greater, numbers of people were then applying to the authorities for assistance to get or keep a roof over their heads. All one-roomed apartments were taken about September, and as for those with two rooms and a kitchen, even on the outskirts of the town, the enormous rents of up to 27*l.* 15s. to 33*l.* 6s. were asked. So much for the dwellings of the poor; but rents for people much better off are also exceedingly high. Seven or eight-roomed flats in a second-class street fetch 130*l.* to 150*l.*, and although 18*l.* or 20*l.* per room is dear enough, one hears continually of rents being put up. It may, perhaps, be difficult altogether to account for this state of things, but, as tending towards high rents, there are the facts that houses in Stockholm are built in handsome and expensive styles, and that borrowing capital for building purposes in times like the present is a costly proceeding.

THE LAND TRANSFER ACT, 1897.—An order in Council has been issued whereby the operation of the Order in Council of July 18, 1898, under the Act of 1897, in as far as it affects the City of London, is again postponed until January 1 of next year.

THE STRAND IMPROVEMENT.—The removal to Brookwood Cemetery by the London Necropolis Company of human remains from the churchyards of St. Mary-le-Strand and St. Clement Danes is now completed. The Company's tender to the London County Council for the work amounted to 2,258*l.* 15s., and they have undertaken, at an estimated cost of 650*l.*, to lay the foundations of the dwarf walls and railings around the portions of the churchyards that will remain enclosed. The cost of repaving and other alterations now being carried out on the two cleared sites is estimated at 6,294*l.*; at St. Clement Danes the works in progress comprise a portion of the subway which will be constructed beneath the new thoroughfare—High Holborn to the Strand.

ARCHÆOLOGICAL DISCOVERY.—A discovery, it is stated, has been made at Peterborough Minster. In removing the rubble which filled one of the many pointed arches in the wall at the eastern extremity of the Palace-gardens, a window of beautiful flowing tracery was revealed. The stonework was in an excellent state of preservation, and only a small portion of one column was missing. It is intended to unseal the neighbouring arches, in the hope that similar archæological treasures may be found. The wall originally formed part of a passage leading from the cloisters to the monks' kitchen.

STONEHENGE.—Sir Edmund Antrobus has intimated his intention, it is stated, of enclosing Stonehenge, in accordance with the advice given to him by various bodies interested in antiquarian and archæological research. It is his intention, however, without relinquishing any of his rights as owner of the property, to admit visitors within the enclosure on payment of 1s. each person on condition that they conform to the regulations.

CAPITAL AND LABOUR.

PENRHYN QUARRIES.—The Penrhyn Quarry will be open on Tuesday, June 11, to all the late employees who have applied for work and have been accepted. The Discipline Rules have been relaxed, and a new rule has been drawn up and agreed upon, which will practically give a half-holiday on the last day of every month; in other respects the Quarry Rules remain as before. (The new rules referred to are printed below.) Applications from "boys" for readmission to the quarry cannot be considered until at least a fortnight after the commencement of work by the men. In order to enforce the law concerning intimidation or annoyance by violence or otherwise (under the Conspiracy and Protection Act), police protection has been promised by the Chief Constable, Colonel Ruck. NEW RULES:—*Discipline.*—All punishments will be by "suspension" or dismissal. For instance, if a workman comes late (except through sickness or sudden case of great emergency) he will the first time be "cautioned," the second time suspended quarter of a day, third offence half-day; but persistent offenders would be more seriously punished or dismissed. *Settling Day.*—On the last Tuesday in each Quarry month the employees, after giving up their slates, settling their accounts, and arranging their bargains for the coming month, will be free to leave the quarry if they wish for the remainder of the day.

YARMOUTH BUILDING STRIKE.—The members of the Operative Bricklayers' Union, to the number of about 140, recently met at the Fish Stall House, Market-place, Yarmouth, to discuss the rules sent by the Masters' Association a few days since. The principal matters for consideration were the question of the working hours in winter, the apprentice clause, and the rate of wages. Mr. Holdsworth, secretary of the Operative Bricklayers' Society, presided. Rule 1, as submitted by the masters, proposed that the winter working hours, commencing from the last Monday in October, should be as follows:—For first four weeks, 6.30 to 5 p.m. for five days, and 6.30 to 1 on Saturdays, 51 hours per week. For the ten middle weeks, commencing on the fourth Monday in November, five days from 7.30 a.m. to 4.30 p.m., and from 7.30 a.m. to 1 p.m. on Saturdays, 42½ hours. For the last four weeks of the winter term, commencing the first Monday in February, five days from 6.30 a.m. to 5.30 p.m., and on Saturdays from 6.30 to 1 p.m., 53½ hours. Full time to commence on the first Monday in March, when the hours will be 56½ per week. A lengthy discussion took place on this rule, and it was pointed out that both rent and the price of provisions had increased so much in the last few years that any such arrangement as that proposed by the masters would leave them with but a bare subsistence at a time when they most required as near to full time as possible. So large a reduction of the hours meant a large reduction in their wages, which they considered unfair, and could not accept with justice to themselves or their families. It was unanimously resolved to stand by the old rule, with the exception of the period of a month in winter—a fortnight before and after Christmas—when they would be willing to a reduction of working time from 7 a.m. to 4.30 p.m., and 7.30 to 1 on Saturdays. The men thought that, taking into consideration that they were frequently compelled to lose time in consequence of bad weather and from other causes, these terms should be agreed to. With regard to the wages clause, they were willing to agree to the masters' offer of an advance of a halfpenny per hour, provided that a further advance of a similar amount be conceded in April, 1902. It was also decided that if the employers did not agree to this proposal the men would not come out before submitting the question to arbitration. With regard to apprentices, it was decided to stick to their old rule made in 1897, which stipulated that boys entering the trade were not to work more than six months without being legally bound for a term of four years. In respect to Rule 9, the meeting desired the masters to alter the word "workmen" to "bricklayers," so that it would read "The Bricklayers' Operative Society agree to work in harmony with any bricklayers engaged," &c. The rules which provided for the agreement between masters and men to end on October 1 were not agreed to, the men strongly adhering to their old date, viz., the first Monday in April.

LEGAL.

ACTION BY BUILDERS AND CONTRACTORS.

THE hearing of the case of Graham & Sons *v.* the Commissioners of Works and Public Buildings was concluded before Justices Ridley and Phillimore on the 22nd inst. in the King's Bench Division. It was an action by the plaintiffs, builders and contractors, to recover from the defendants damages for alleged breach of contract and for wrongful conversion of builder's plant.

It appeared that in September, 1899, the plaintiffs entered into a contract with the defendants to build a post-office at Stalybridge, in Lancashire, and, by their statement of claim, they alleged that on December 31, 1900, the defendants wrongfully determined and repudiated the contract and prevented the plaintiffs from executing the work in question. The Commissioners, amongst other pleas, pleaded that they were a corporation under and subject to the provisions of 14 and 15 Vict., c. 42, 15 Vict., c. 28, and 37 and 38 Vict., c. 84, and that the contract in question was entered into by them as servants and agents of the Crown and on behalf of the Crown, and not otherwise, and their case was that no claim in any event could be maintained against them upon the contract; and alternatively that the plaintiffs could only put forward such claim by petition of right. The plaintiffs replied that defendants were a corparation to all intents and purposes. The only question now raised was the question of law raised by the above pleas.

After hearing the arguments of counsel, their lordships held that the defendants expressly contracted for themselves, and must be treated as principals and as liable under the contract. They accordingly gave judgment for the plaintiffs, the builders.

Mr. Scott Fox, K.C., and Mr. Andrew Strahan appeared for the plaintiffs and the Attorney-General and Mr. Askwith for the defendants.

RECENT PATENTS:

ABSTRACTS OF PATENTED INVENTIONS.

1,220.—WALL-TIES: *F. G. McDowell.*—The serrated edges of metal strips engage with the bricks, whilst their ends have flanges which will fit on the outside of the bricks and in recesses in the masonry work. For fastening bricks to woodwork, nails are inserted through holes in the strips into the wood sheathing, and the strips are then turned over the bricks.

1,223.—STAGING AND SCAFFOLDING: *E. F. Palmer* and *E. T. Palmer.*—For a travelling scaffold ladders are fixed in sockets upon a base which runs on wheels, and adjustable screw couplings are provided for the connecting rails, bolts and tie-rods. Boards laid over planks that rest upon the ladder-rounds and have guard-rails constitute a working stage or platform, and two or more ladders can be joined together with channel irons, sockets, &c.

1,241.—CONVEYERS: *C. Clay.*—Sprocket wheels carry a pair of endless chains that move in parallel planes, pins secure tables to the chains, and a distance which is equal to that between the axes of the pins upon each table separates the axes of the two sprocket wheels mounted at either end; the tables, therefore, will remain in a horizontal plane during their movement by the conveyer. The lower run may be arranged upon one floor with the upper run upon another floor, and rollers fitted upon each of the tables will engage with the main and the end rails.

1,246.—PULLEY BLOCKS: *W. Campbell.*—The side-plates, between which the sheave is carried, are kept apart at the required distance with flanges, and their extension upwards constitutes a necking, from within which project rings for engagement with similar rings upon the eye-bolt.

1,269.—A BAND FRICTION BRAKE: *A. Kelly and C. D. B. Hansen.*—The brake, intended for use with windlasses and capstans, consists of two bands around the drum, which are joined with links to the outer ends of an equivalent lever linked to the bed-plate and pivoted on to a block that presses against the drum. From the lever projects an arm, to which are linked the worm and toothed quadrant which work the brake.

1,278.—PARALLEL RULERS: *W. P. Johnson.*—A projecting straight-edge is mounted upon end plates in which are journalled the rollers, which may be of different sizes. In order that the straight-edge may be easily handled, it is furnished with an ear or a flange.

1,310.—APPLIANCES FOR CAGE LIFTS: *W. B. Sayers.*—Friction is reduced by means of the rubber or air tyres of pulleys that run in V-grooved guides upon the sides of the well, and the balance-weight is fitted in the same manner. For regulating the pressure the pulleys are carried adjustably upon bell-crank levers, and the cage has side plates that will avail in cases of emergency.

1,360.—WIRE FENCING: *D. Rowell.*—The sharp pointed metal standard has perforations through which spikes can be driven when it has been forced into the ground; clips are used for fastening wire-droppers to the horizontal wires, and are to be hooked on to one limb of the dropper.

1,428.—FLUSHING APPARATUS: *F. Duckett & Son, G. F. Duckett, and F. W. Bullock.*—In the case of latrines or multiple closets the water is caused to flow into the siphon and the cistern by lifting the dead-weight valve with the pull, after which it flows through the fall-pipe and so sets up a current of air from the air chamber until a vacuum has been formed in the latter, then the contents of the basins and their connecting trough are siphoned through the middle trap until water in the cistern falls below a certain level, but until the cistern has been emptied and the pipes and basins recharged the upper siphon will continue to act. The closets when not in use may be emptied by means of a stop-tap in the air extractor pipe.

1,445.—TRANSFORMERS (ELECTICAL): *A. H. Loring and H. L. Clark.*—The casing or box can be affixed to a wall or post, and has a sliding door. The core consists of two pieces, whereof one is secured (for closing circuit) with a bar, yoke, and screw-clamp, and the other should be U-shaped, the coils being adapted to slide on to or off from the limbs of the core when its latter portion is detached A bracket with lugs holds the core in its place within the box.

1,458.—FIRE-PROOFING COMPOSITIONS: *C. Schroeter.*—Wood, fabrics, &c., are treated with borax and sulphate of magnesia, to which may be added gypsum and ammonium chloride, in order to form an insoluble borate of magnesia.

1,493.—A TUBE FOR BORING AND LINING WELLS: *F. Pehlke.*—The suction or straining piece of a well boring and lining tube is screwed on to it and has the earth borer at its extreme end; it is guarded with a metal sleeve upon the tube, and at its lower end (just above the borer) is a protecting ring in the shape of a wedge.

1,506.—BRACKETS FOR RODS AND THEIR FITTINGS: *F. F. James (Dutson & Co.)*—A grooved or recessed blank is bent so as to form a circular loop, a projection from the rod is put into the opening of the loop so that it shall engage with the groove when the rod is turned, a plate that closes the bracket end may be fashioned in one piece with the blank, or it may be held in its place with a shield, the end of the barrel being turned over, or by springing it into a recess within the barrel. Various modifications are specified—in one form a cup-shaped bracket has a notched lip that takes the projection upon the rod, and is to be affixed to the retaining screw either loosely or rigidly by a turn of the ends over two discs that are threaded on the screw, one being turned around the head; or the cup having either a plain or a gapped flange is screwed on to the threaded head of the holding screw.

1,513.—EXTINCTION OF FIRE: *G. Edwards.*—Waterproof cases made of cardboard and disposed ready for use are filled with a powder composed of gunpowder, sand, and carbonates of lime and soda mixed together.

1,531.—A REGULATOR FOR ELECTRICAL LAMPS: *F. K. Hatmaker.*—A divided resistance and a covered switch constitute a rheostat. The former should consist of a metal wire, which is set in enamel upon a metal tube mounted upon the base and put around the insulating joint of the bracket. The switch comprises a pile of metal discs, whereof those at the top and bottom are riveted together, layers of insulating material being interposed between the several discs. The switch is held up with an extension of the disc which is next beneath the top one and is affixed to the base, and it is encompassed with some insulating material such as asbestos. On the top disc is a lug connected to one supply wire. A handle-turned shaft is carried by that and the bottom disc, and on the shaft is a trailing spring within a series of contacts turned downwards from the lower range of discs whereon are lugs connected with wires to the divided resistance; thus either none, or part, or the whole can be placed in circuit, or the circuit can be opened. In order that the spring may snap from each to the next one the contacts are turned inwards.

1,554.—CONSTRUCTION OF FLOORS, ARCHES, ROOFS, &C.: *F. Leysen.*—For these the inventor devises perforated blocks of concrete fashioned with rebated ends and with sides inclined so as to interlock with one another. The blocks are to be laid to break joint, and are then united with cement.

1,579.—AN APPLIANCE FOR PAINTERS' USE: *F. Keighley.*—With the brush are combined a reservoir for the paint, and a flexible tube attached to the root of the bristles which is fitted with a tap; a spring joins together two levers which press the reservoir between them; paint is poured into the reservoir through a capped orifice.

1,659.—APPARATUS FOR USE WITH LIFTS: *F. Meather and F. Bolton.*—The inventors' object is to provide means of holding open the folding doors whilst the cage is at the floor, and of automatically shutting and locking the doors when the cage moves. Two arms are screwed upon a cross-shaft which extends across the top of the doorway, and are retained in their normal position with springs. When the cage has arrived at a floor, a cam that projects from it engages with an arm upon the shaft and rocks the shaft. As the doors are opened they engage with catches that hang upon the two arms of the cross-shaft. Then with the departure of the cage springs shut the doors, which are forthwith locked with spring catches that engage with a short bar, and will be again raised, so that the doors may be pushed back, by means of their engagement with a lug upon the shaft as it is turned by the cage.

1,661.—SEATS FOR ASSISTANTS IN SHOPS, &C.: *F. F. Boyd.*—From a hook or eye upon the upper end of a standard or plate hangs a stirrup on to which the seat is pivoted. As the unused seat hangs down it may be swung aside out of the way, but for use it is secured with a projection that fits into a socket. The latter may be formed in the seat and the plate may be made crank-wise to serve for the former.

1,662.—URINALS: *W. Oates.*—For urinals after the "stall" type the front edges are fashioned parallel to one another and are vertical, the backs and sides being sloped inwards from top to bottom; it is intended that the diminishing surface thus obtained shall concentrate the flush.

1,704.—AN ELECTRICAL CONTACT-MAKER FOR BURGLAR ALARMS, &C.: *D. Vial.*—Two terminals connected to the alarm circuit are fitted on the base which is fixed to the door or other part of the building, &c.; from one of two other terminal plates is hung a pendulum of which the rod is passed through a hole in the other of the plates. Under normal conditions the rod rests out of contact with the last-named terminal plate; it is either jointed or wholly or partially flexible. When the pendulum is caused to vibrate by any means the alarm circuit between its rod and the plate will become completed. If it is desired to substitute the appliance for the ordinary contact buttons or pushes of electrical bells, it may be disposed for operation by the hand or otherwise.

1,705.—METHOD OF DRYING BLOCKS OF ARTIFICIAL STONE AND OF SLAKING LIME AT THE SAME TIME: *W. Olschewsky.*—For the stacking of moulded blocks upon the truck the lower layers are strengthened against the pressure exerted by those above them by being first dried over a chamber into which steam is admitted; the lime in the chamber becomes slaked by the condensed water and the engendered heat contributes to dry the blocks. The blocks are next hardened in the drying chamber or furnace to which the truck is conveyed.

1,718.—TRAPS FOR GULLIES: *A. S. Chadwick.*—The rectangular gully has a top of which the sides are directed inwards down to a middle channel that communicates with the outlet. Besides the customary grating in the top of the gully, another grating is fitted over the outlet.

MEETINGS.

SATURDAY, MAY 25.

Royal Institution.—Professor W. M. Flinders Petrie on "The Rise of Civilisation in Egypt." III. 3 p.m.

British Institute of Certified Carpenters.—Visit to the Royal Masonic Schools at Bushey. Meet in Central Hall, Euston Station. Train leaves Euston 2.40 p.m.

THURSDAY, MAY 30.

Surveyors' Institution.—Country meeting at Southampton

Institution of Electrical Engineers.—Annual general meeting to receive Annual Report of Council and statement of accounts and balance-sheet for twelve months ending December, 1900. The announcement of the election of the new Council will be made at this meeting. 8 p.m.

FRIDAY, MAY 31.

Architectural Association.—Annual dinner, Criterion Restaurant, Piccadilly-circus. 7.30 p.m.

Surveyors' Institution.—Country meeting at Southampton (concluded).

SATURDAY, JUNE 1.

Edinburgh Architectural Association.—Visits to the Round Tower, Abernethy; and Balmano Castle.

Association of Municipal and County Engineers.—Home District meeting, Chichester. Mr. J. Saunders on "Municipal Work in Chichester."

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

May 4.—By STEPHENSON & ALEXANDER (at Cardiff).

Lantwit Vardre, Glamorgan.—The Tir Cwyth-y-Gwas Mineral Estate, 57 a. 2 r. 0 p., f.	£600

May 9.—By MADDISON & SON (at St. Neots).

Wybaston, Beds.—The Rookery Estate, 295 a. 0 r. 9 p., f.	11,250
Two enclosures of market garden land, 14 a. 3 r. 23 p., f.	795
Holmes Field, 10 a., f.	510

By DOUGLAS YOUNG & Co. (at Ilford).

Ilford, Essex.—Coventry-rd., Blaen-y-Cwm, f., r. 55*l.*	1,100
Wellesley-rd., three plots of building land, f.	227

May 10.—By ELLIS & SON.

Dulwich.—Champion Hill, Baveno and 2 a., u.t. 43 yrs, g.r. 54*l.* 18*s.*	1,250

By HIBBARD & WHITTINGHAM.

Bethnal Green.—13, Warley-st., f., r. 26*l.*	330

By HORNE & Co.

Putney Hill.—Royston and 1 a., u.t. 84 yrs., g.r. 80*l.*	4,800

By HUMPHREYS, SKITT, & HUMPHREYS.

Greenwich.—Crooms Hill, the Manor House, f., r. 92*l.* 17*s.*	1,390
Lewisham.—81, George-lane, f., e.r. 55*l.*	610

By JONES, LANG, & Co.

City of London.—Aldermanbury, i.g.r. 425*l.*, u.t. 71 yrs., g.r. 315*l.*	2,550
23, Aldermanbury, u.t. 71 yrs., g.r. 345*l.*, r. 700*l.*	2,200
28, 29, and 30a, Cheapside, u.t. 58 yrs., g.r. 1,568*l.*, r. 3,020*l.*	11,000

By WILLSON & PHILLIPS (at Chelmsford).

Springfield, Essex.—Wenlock-cottages (six), f.	£490
Gallywood Common, Essex.—Two freehold cottages	135

By DYER, SON, & HILTON (at Lewisham).

Lewisham.—199 and 201, High-st., f.	1,120
1 and 2, Adelaide-villas, u.t. 87 yrs., g.r. 14*l.*, r. 62*l.*	595

May 11.—By WILLSON & PHILLIPS (at Rayleigh).

Thundersley Hill, Essex.—Two freehold cottages	310

By WILLSON & PHILLIPS (at Hadleigh).

Hadleigh, Essex.—Castle View Villa, f.	225

May 13.—By JOHN H. BETHELL.

Poplar.—93, 94, and 95, Sussex-st., u.t. 52 yrs., g.r. 7*l.* 10*s.*	800

By C. RAWLEY CROSS & Co.

Shepherd's Bush.—49 and 55, Loftus-rd., u.t. 64 yrs., g.r. 7*l.* 5*s.*, r. 76*l.*	990
18, Melrose-ter., u.t. 75½ yrs., g.r. 6*l.*, r. 43*l.*	455
21 to 30, Woodstock-rd., u.t. 63 yrs., g.r. 70*l.*, r. 354*l.*	4,695
18 to 23, Shepherd's Bush-green, u.t. 62 yrs., g.r. 60*l.*, r. 425*l.*	7,125

By DANN & LUCAS.

Northfleet, &c., Kent.—New Barn Farm, 327 a. 3 r. 24 p., f.	6,400
Bexley Heath, Kent.—Pickford-rd., Brampton Park Nursery, 4½ a., f.	2,900
Horton Kirby, Kent.—The Ten Acres, 10 a. 0 r. 18 p., f.	520
Stone, Kent.—Fairlawn and 0 a. 3 r. 3 p., f., r. 40*l.*	550
Littlebrook Manor Way, two enclosures of marsh land, 12 a. 1 r. 26 p., f.	1,220

By HOLCOMBE, BETTS, & WEST.

Harlesden.—3, Harlesden Park-rd., f., r. 75*l.*	1,455
65 and 67, Cambridge-rd., f., r. 135*l.*	2,985

By THURGOOD & MARTIN.

Notting Hill.—17, Lansdowne-rd., f., r. 110*l.*	2,000
Addiscombe.—21, Havelock-rd., u.t. 74½ yrs., g.r. 20*l.*, r. 90*l.*	700
13, Havelock-rd., u.t. 74½ yrs., g.r. 16*l.*, r. 75*l.*	600
Streatham.—Polworth-rd., Sunnyside and Ivydene, f., r. 150*l.*	2,350

By WOODS & SNELLING.

Eltham, Kent.—The courtyard, a house and shop, u.t. 42½ yrs., g.r. 15*l.*, r. 60*l.*	810
Foots Cray, Kent.—Church-rd., a plot of land, f.	457
Cray-rd., Twysdens and 16 a. 1 r. 2 p., f.	3,300
Cray-rd., a block of freehold land, 4 a. 1 r. 23 p.	720
Cray-rd., a block of freehold land, 5 a. 2 r. 26 p.	1,280

By NORMAN & SON (at Stratford).

Stratford.—62, Bolton-rd., u.t. 88 yrs., g.r. 2*l.* 16*s.* 8*d.*	310
Plaistow.—Pelly-rd., three cottages, mission room, and plot of land, f.	510

By PROTHEROE & MORRIS (on the Estate).

Clacton-on-Sea, Essex.—King's-parade, &c., 112 plots of building land, f. (in lots)	2,956

May 14.—By DAVID BURNETT & Co.

Bermondsey.—109 and 111, Bermondsey New-rd., f., r. 160*l.*	3,100

By COCKETT & HENDERSON.

Woodford Green, Essex.—Higham Lodge and 3 a., f.	3,900
Snaresbrook.—Sylvan-rd., Holly Bank, f., e.r. 80*l.*	1,325
Cleveland-rd., Graham Villa, f., r. 40*l.*	675
Clapton.—Oswald-st., 7 plots of building land, f.	550

By DEBENHAM, TEWSON, & Co.

Wennington, Essex.—New Hall Estate, 45 a. 2 r. 15 p., f.	5,200
Hailsham, Sussex.—Ersham Lodge, 31 a. 3 r. 5 p., f.	4,900
Two enclosures of land, 7 a. 1 r. 31 p., f.	620

By R. W. FORGE.

South Ockenden, Essex.—Romford-rd., Rose Villa and a villa adjoining, area 1 a. 0 r. 12 p., f., e.r. 70*l.*	870

By E. HOLSWORTH.

Stamford Hill.—32 to 46 (even), Stamford-ter., u.t. 76½ yrs., g.r. 40*l.*	2,450
Harrow.—Bonnersfield-lane, Greenhill Cottage, f., r. 20*l.*	420
Stamford Hill.—2, Darenth-rd., u.t. 81½ yrs., g.r. 7*l.*, e.r. 52*l.*	560

By WALTER MORTLOCK.

New Cross.—74 and 76, Bousfield-rd., u.t. 58 yrs., g.r. 21*l.*, r. 60*l.*	600
66, Drakefell-rd., u.t. 63 yrs., g.r. 6*l.* 6*s.*, r. 34*l.*	400

By ROGERS, CHAPMAN & THOMAS.

Hammersmith.—137 to 159 (odd), Salgrave-rd., u.t. 78 yrs., g.r. 83*l.*, r. 372*l.* 5*s.* (in lots)	3,420
Chelsea.—98, Walton-st., u.t. 40½ yrs., g.r. 7*l.*, r. 45*l.*	620
118, Walton-st., u.t. 41 yrs., g.r. 4*l.* 10*s.*, r. 35*l.*	430

By Messrs. RUTTER.

Basildon, Essex.—Oliphant's Chase Farm, 48 a., f.	1,600

By WILLIAM ROLFE (at Masons' Hall Tavern).

Hyde Park.—Seymour-pl., The Carpenters' Arms p.-h., u.t. 26 yrs., r. 100*l.*, with goodwill	3,400

May 15.—By ARTHUR BARTON.

Southall, Middlesex.—27 and 29, Hammond-rd., u.t. 97 yrs., g.r. 11*l.*, r. 60*l.*	530

By BAXTER, PAYNE, & LEPPER.

Bickley, Kent.—Widmore, Nettlestone, and 3 a., f.	5,950
Bromley.—21 and 23, Ravensbourne-rd., f., e.r. 90*l.*	800
61 and 63, Simpson's-rd., f.	550

By G. ERNEST CLARKE.

Stoke Newington.—48, Queen-Margaret's-grove, u.t. 48½ yrs., g.r. 5*l.* 5*s.*, r. 32*l.*	240
Hackney.—14, Horton-rd., u.t. 56½ yrs., g.r. 5*l.* 10*s.*, r. 30*l.*	320
Forest Gate.—24 and 26, Essex-st., f.	550
Walthamstow.—23 and 25, East-avenue, f.	1,480
53, Markhouse-rd., f., r. 32*l.*	455
19, Albert-rd., f., r. 26*l.*	360
Homerton.—84, Templar-rd., f.	345
Hackney.—54 and 70, Paragon-rd., u.t. 38 yrs., g.r. 7*l.*, r. 66*l.*	600

By FISHER, STANHOPE, & DRAKE.

Clapton.—95 to 107 (odd), Upper Clapton-rd.; 5 to 23 (odd), Rossington-st., 24, 26, 27, 28, and 30, Conduit-st., area 47,350 ft., f., r. 335*l.*	12,500
Stoke Newington.—184, Lordship-rd., u.t. 21½ yrs., g.r. 7*l.* 10*s.*	700
West Ham.—33 to 45 (odd), Amity-rd., u.t. 78 yrs., g.r. 35*l.*	1,400

Camberwell.—6, Linnell-rd., u.t. 65½ yrs., g.r. 6*l.*, r. 30*l.* £300

By FOSTER & CRANFIELD.

City of London. — 21, Paternoster-row, area 724 ft., f. 5,500

Twickenham. — May-rd., a block of building land, f. 325

By HAROLD GRIFFIN.

Battersea.—74 and 76, Gwynne-rd., u.t. 65 yrs., g.r. 7*l.* 10s. 500

10 and 12, Latchmere-rd., u.t. 61 yrs., g.r. 10*l.* 10s. 490

1 to 15 (odd), Bullen-st., u.t. 76 yrs., g.r. 44*l.* .. 2,220

Wandsworth.—16 to 32 (even), Ferrier-st., u.t. 75 yrs., gr. 45*l.* 1,680

50 to 56 (even), Ferrier-st., u.t. 75 yrs., g.r. 20*l.* 800

Raynes Park.—46 to 56 (even), Chestnut-rd., u.t. 80 yrs., g.r. 36*l.*, r. 126*l.* 1,050

By HOLLIS & HARRIS.

Finsbury.—8, South-st., u.t. 8½ yrs., gr. 125*l.*, r. 424*l.* 10s. 520

Holloway.—8, Chester-rd., u.t. 80 yrs., g.r. 8*l.* 10s., e.r. 42*l.* 400

Kentish Town.—93, Dartmouth Park Hill, u.t. 79½ yrs., g.r. 6*l.*, r. 30*l.* 225

By OGDEN, SONS, & OLLEY.

Wimbledon.—14, Denmark-avenue, u.t. 61 yrs., g.r. 7*l.*, r. 50*l.* 600

By WRIFORD & DIXONS.

Leyton.—223 to 231 (odd), Church-rd., u.t. 992 yrs., g.r. 26*l.* 5s. 1,000

By MOORE & SONS (at Tewkesbury).

Pendock, &c., Worcester.—Red Hill Meadow, 5 a. 1 r. 11 p., f. 100

By BALCH & BALCH (at Camden Town).

Kentish Town.—29, Dalby-st., u.t. 66 yrs., g.r. 7*l.*, r. 34*l.* 350

Holloway.—48 and 54, St. John's-villas, u.t. 74 yrs., g.r. 10*l.* 10s., r. 82*l.* 980

2A, Warrender-rd., u.t. 55 yrs., g.r. 6*l.*, r. 38*l.* 10s. 415

By JOSEPH STOWER (at Woking).

Woking, Surrey. — High-st., freehold house, cottage, and six plots of land, area 2 a. 1 r. 10 p. 1,170

By FREDK. WARMAN (on the Premises).

CrouchEnd.—11, Weston-pk., u.t. 85 yrs., g.r. 14*l.* 875

May 16.—By AVANT & CROYDON.

Wandsworth-rd.—45, Dawlish-st., u.t. 30 yrs., g.r. 3*l.* 11s. 9d. 165

By CHADWICK & SONS.

New Cross.—St. Donatt's-rd., i.g.r. 24*l.* 6s., u.t. 53 yrs., g.r. 1*l.* 11s. 420

St. Donatt's-rd., i.g.r. 9*l.* 10s., u.t. 58 yrs., g.r. 10s. 170

Regent's Park.—153 and 181, Albany-st., u.t. 14½ yrs., g.r. 30*l.* 15s., r. 120*l.* 520

St. Pancras.—5 to 17 and 24, Brantome-pl., u.t. 51½ yrs., g.r. 10*l.* 10s., r. 147*l.* 300

Kentish Town.—45 and 47, Caversham-rd., u.t. 48 yrs., g.r. 10s., r. 110*l.* 1,325

Piccadilly.—128, Jermyn-st., u.t. 14½ yrs., g.r. 42*l.*, r. 130*l.* 665

By J. G. DEAN & CO.

Pimlico.—21, Bessborough-gds., u.t. 30 yrs., g.r. 10*l.*, r. 65*l.* 525

Wandsworth.—11, Nicosia-rd., u.t. 79 yrs., g.r. 9*l.*, e.r. 50*l.* 545

Balham.—132, Ramsden-rd., f., e.r. 60*l.* 725

By C. RAWLEY CROSS & CO.

Shepherd's Bush.—64 and 64A, Vespan-rd., f. .. 750

1 to 4, Norland-rd. North, u.t. 66 yrs., g.r. 32*l.* r. 142*l.* 1,635

1 and 3, Saunders-rd., u.t. 66 yrs., g.r. 16*l.* .. 810

FORTESCUE & BRANSON.

Hammersmith.—140, King-st., c.r. 45*l.* 1,160

By H. W. HARDY.

Chiswick.—40 and 42, Elliott-rd., f., r. 66*l.* 1,100

11 and 13, Fisher's-lane, f., r. 50*l.* 805

Isleworth, Middlesex.—60, 62 and 64, South-st., f. 585

Deptford.—61 and 63, Croft-st., u.t. 49 yrs., g.r. 4*l.* 595

By STIMSON & SONS.

Hammersmith.—50, Weltji-rd., u.t. 81 yrs., g.r. 8*l.*, e.r. 50*l.* 510

Chiswick.—2, Grove Park Gardens, u.t. 79 yrs., g.r. 16*l.*, r. 60*l.* 610

Walworth.—101, 103, and 105, Barlow-st., f. 780

30, Manor-pl., f. 460

Brixton.—139, Stockwell-rd., u.t. 38 yrs., g.r. 3*l.*, r. 40*l.* 470

Old Kent-rd.—No. 266, u.t. 27½ yrs., g.r. 14*l.*, r. 65*l.* 400

Battersea.—195, Beaufoy-rd., u.t. 68 yrs., g.r. 5*l.* 200

Camberwell.—7 and 11, Grosvenor-ter., u.t. 55 yrs., g.r. 14*l.* 10s., r. 72*l.* 675

Dulwich. 61, Underhill-rd., f., e.r. 40*l.* 540

Norwood.—27, Palace-rd., u.t. 50 yrs., g.r. 10*l.*, e.r. 42*l.* 200

By WATTS & WELLS.

St. John's Wood.—1 to 5, Violet-hill, f., r. 130*l.* 11, Abercorn-pl., f., r. 50*l.* 1,200

Blenheim-ter., &c., f.g.r. 55*l.*, reversion in 10½ yrs. 500

By BEALE & CAPPS.

Fulham.—53, Bowerdean-st., u.t. 90½ yrs., g.r. 2*l.*, r. 36*l.* 1,400

By H. V. CHEW.

Leytonstone.—16, New Fillebrook-rd., u.t. 94 yrs., g.r. 6*l.* 10s., e.r. 45*l.* 500

By FULLER, MOON, & FULLER.

Enfield.—Bush Hill Park, 9, 15, and 16, First-avenue, u.t. 88 yrs., g.r. 15*l.*, r. 110*l.* 2s. 450

17, Second-avenue, u.t. 88 yrs., g.r. 4*l.* 10s., e.r. 28*l.* 1,008

By PROTHEROE & MORRIS.

Old Kent-rd.—45, 47, and 49, Kender-st., f. 295

1 to 9, Ester-cottages, f. 950

Kender-st., a plot of building land, f. 1,510

Peckham.—62 to 68 (even), Clifton-rd., u.t. 45 and 44 yrs., g.r. 17*l.*, r. 142*l.* 125

Bromley-by-Bow.—20, Tapley-st., u.t. 38 yrs., g.r. 2*l.* 10s. 1,195

Limehouse.—30 to 42 (even), Burgess-st., u.t. 62 yrs., g.r. 24*l.* 10s. 180

Doddinghurst, Essex.—Part of Dagwood Farm, with cottages and buildings, area 32 a. 1 r. 26 p., f. 1,615

By E. & S. SMITH.

City of London.—3, Moorgate-st.-buildings, u.t. 32½ yrs., g.r. 15*l.* 12s., r. 600*l.* 660

By T. G. WHARTON.

Hendon.—Milton-rd., f.g.r.'s 42*l.*, reversion in 81 yrs. £925

Albion-villas, f.g.r.'s 30*l.*, reversion in 80 yrs. .. 665

Finsbury Park.—38, Portland-rd., u.t. 57 yrs., g.r. 12*l.* 12s., r. 55*l.* 600

28, 30, and 32, Adolphus-rd., u.t. 57 yrs., g.r. 37*l.* 16s., r. 165*l.* 1,685

49 and 51, Adolphus-rd., u.t. 57 yrs., g.r. 25*l.* 4s., r. 110*l.* 1,110

By WINDRUM & CLEAVE.

Stepney.—86, Dempsey-st., u.t. 12½ yrs., g.r. 3*l.*, r. 34*l.* 200

Upton Park.—8, 10, 12, and 14, Thackeray-rd., f. 30 to 40 (even), Creighton-av., u.t. 97 yrs., g.r. 12*l.* 12s. 1,540

Bow.—80, Malmesbury-rd., u.t. 45¾ yrs., g.r. 4*l.* 1,350

Plaistow.—9 to 23 (odd), Queen's-rd., u.t. 79 yrs., g.r. 25*l.* 4s. 320

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard. 960

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£ s. d.		
Hard Stocks	1 14 6	per 1,000	alongside, in river.
Rough Stocks and Grizzles	1 11 0	,,	,, ,,
Facing Stocks	2 12 0	,,	,, ,,
Shippers	2 8 0	,,	,, ,,
Flettons	1 9 0	,,	at railway depot.
Red Wire Cuts	1 15 6	,,	,, ,,
Best Fareham Red	3 11 0	,,	,, ,,
Best Red pressed Ruabon Facing.	5 5 0	,,	,, ,,
Best Blue Pressed Staffordshire	4 4 6	,,	,,
Do., Bullnose	4 9 0	,,	,, ,,
Best Stourbridge Fire Bricks	4 2 6	,,	,, ,,
GLAZED BRICKS.			
Best White and Ivory Glazed Stretchers	13 0 0	,,	,, ,,
Headers	12 0 0	,,	,, ,,
Quoins, Bullnose, and Flats	17 0 0	,,	,, ,,
Double Stretchers	19 0 0	,,	,, ,,
Double Headers	16 0 0	,,	,, ,,
One Side and two Ends	19 0 0	,,	,, ,,
Two Sides and one End	20 0 0	,,	,, ,,
Splays, Chamfered, Squints	20 0 0	,,	,, ,,
Best Dipped Salt Glazed Stretchers and Headers	12 0 0	,,	,, ,,
Quoins, Bullnose, and Flats	14 0 0	,,	,, ,,
Double Stretchers	15 0 0	,,	,, ,,
Double Headers	14 0 0	,,	,, ,,
One Side and two Ends	15 0 0	,,	,, ,,
Two Sides and one End	15 0 0	,,	,, ,,
plays, Chamfered, Squints	14 0 0	,,	,, ,,
Seconds Quality White and Dipped Salt Glazed	2 0 0	,,	less than best

	s. d.		
Thames and Pit Sand	7 3	per yard, delivered.	
Thames Ballast	6 0	,,	,,
Best Portland Cement	36 6	per ton, delivered.	
Best Ground Blue Lias Lime	25 6	,,	,,

NOTE.—The cement and lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime	13s 6d.	per yard, delivered
Stourbridge Fire-clay in sacks,	28s. od.	per ton at rly. dpt.

STONE.

	s. d.		
Ancaster in blocks	2 0	per ft. cube, deld.	rly. depôt.
Bath ,,	1 7	,,	,,
Farleigh Down Bath	1 8	,,	,,
Beer in blocks	1 6½	,,	,,
Grinshill ,,	1 10	,,	,,
Brown Portland in blocks	2 2	,,	,,
Darley Dale in blocks	2 1½	,,	,,
Red Corsehill ,,	2 5	,,	,,
Red Mansfield ,,	2 4½	,,	,,
Hard York in blocks	2 10	,,	,,
Hard York 6 in. sawn both sides landings, to sizes (under 40 ft. sup.)	2 8	per ft. super.	at rly. depôt
,, ,, 6 in. Rubbed Ditto	3 0	,,	,,
,, ,, 3 in. sawn both sides slabs (random sizes)	1 3	,,	,,
,, ,, 3 in. self-faced Ditto	0 9½	,,	,,

SLATES.

in. in.	£ s. d.		
20×10 best blue Bangor	11 5 0	per 1000 of 1200	at ry. dep.
,, best seconds ,,	10 15 0	,,	,,
16×8 best ,,	6 2 6	,,	,,
20×10 best blue Portmadoc	10 18 0	,,	,,
16×8 best blue Portmadoc	6 0 0	,,	,,
20×10 best Eureka unfading green	11 2 6	,,	,,
16×8 ,, ,,	6 15 0	,,	,,
20×10 Permanent green	10 0 0	,,	,,
16×8 ,, ,,	5 12 6	,,	,,

PRICES CURRENT (*Continued*).

TILES.

	s. d.		
Best plain red roofing tiles	41 6	per 1,000	at rly. depôt.
Hip and valley tiles	3 7	per doz.	,, ,,
Best Broseley tiles	48 6	per 1,000	,, ,,
Hip and valley tiles	4 0	per doz.	,, ,,
Best Ruabon Red, brown or brindled Do. (Edwards)	57 6	per 1,000	,, ,,
Do. ornamental Do.	60 0	,,	,, ,,
Hip tiles	4 0	per doz.	,, ,,
Valley tiles	3 9	,,	,, ,,
Best Red or Mottled Staffordshire Do. (Peakes)	50 9	per 1,000	,, ,,
Hip tiles	4 1	per doz.	,, ,,
Valley tiles	3 8	,,	,, ,,

WOOD.

BUILDING WOOD.—YELLOW.

	At per standard. £ s. d.	£ s. d.	
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	16 10 0	18 0 0	
Deals: best 3 by 9	14 10 0	15 10 0	
Battens: best 2½ in. by 7 in. and 8 in. and 3 in. by 7 in. and 8 in.	12 0 0	13 0 0	
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.	
Deals: seconds	1 0 0	less than best	
Battens: seconds	0 10 0	,, ,,	,,
2 in. by 4 in. and 2 in. by 6 in.	9 10 0	11 0 0	
2 in. by 4½ in. and 2 in. by 5 in.	9 0 0	10 10 0	
Foreign Sawn Boards— 1 in. by 1¼ in. by 1½ in.	10 0	more than battens.	
¾ in.	1 0 0	more than battens.	

	At per load of 50 ft.		
Fir timber: Best middling Danzig or Memel (average specification)	4 10 0	5 0 0	
Seconds	4 5 0	4 10 0	
Small timber (8 in. to 10 in.)	3 12 6	3 15 0	
Swedish balks	2 15 0	3 0 0	
Pitch pine timber (35 ft. average)	3 10 0	4 0 0	

JOINERS' WOOD.

	At per standard.		
White Sea: First yellow deals, 3 in. by 11 in.	27 10 0	28 10 0	
3 in. by 9 in.	24 0 0	25 0 0	
Battens, 2½ in. and 3 in. by 7 in.	20 0 0	21 0 0	
Second yellow deals, 3 in. by 11 in.	22 10 0	24 0 0	
,, ,, 3 in. by 9 in.	20 0 0	21 0 0	
Battens, 2½ in. and 3 in. by 7 in.	16 10 0	18 0 0	
Third yellow deals, 3 in. by 11 in. and 9 in.	16 10 0	18 0 0	
Battens, 2½ in. and 3 in. by 7 in.	13 10 0	14 10 0	
Petersburg: first yellow deals, 3 in. by 11 in.	25 0 0	26 0 0	
Do. 3 in. by 9 in.	22 0 0	23 0 0	
Battens	16 10 0	17 10 0	
Second yellow deals, 3 in. by 11 in.	18 10 0	20 0 0	
Do. 3 in. by 9 in.	17 0 0	18 0 0	
Battens	14 0 0	14 10 0	
Third yellow deals, 3 in. by 11 in.	15 0 0	16 10 0	
Do. 3 in. by 9 in.	14 0 0	14 10 0	
Battens	12 10 0	13 10 0	
White Sea and Petersburg:— First white deals, 3 in. by 11 in.	15 10 0	16 10 0	
,, ,, ,, 3 in. by 9 in.	14 10 0	15 10 0	
Battens	12 10 0	13 10 0	
Second white deals 3 in. by 11 in.	14 0 0	15 0 0	
,, ,, ,, 3 in. by 9 in.	13 0 0	14 0 0	
,, ,, battens	11 0 0	12 0 0	
Pitch pine: deals	16 0 0	18 0 0	
Under 2 in. thick extra	0 10 0	1 0 0	
Yellow Pine— First, regular sizes	30 0 0	33 0 0	
Broads (12 in. and up)	2 0 0	more.	
Oddments	22 0 0	24 0 0	
Seconds, regular sizes	24 10 0	26 10 0	
Yellow Pine Oddments	20 0 0	22 0 0	
Kauri Pine— Planks, per ft. cube	0 3 6	0 4 6	
Danzig and Stettin Oak Logs— Large, per ft. cube	0 2 6	0 3 0	
Small ,, ,,	0 2 3	0 2 6	
Wainscot Oak Logs, per ft. cube	0 5 0	0 5 0	
Dry Wainscot Oak, per ft. sup. as inch	0 0 8	0 0 7	
in. do. do.	0 0 7	. . .	
Dry Mahogany— Honduras, Tabasco, per ft. sup. as inch	0 0 9	0 0 11	
Selected, Figury, per ft. sup. as inch	0 1 6	0 2 0	
Dry Walnut, American, per ft. sup. as inch	0 0 10	0 1 0	
Teak, per load	16 0 0	20 0 0	
American Whitewood Planks— Per ft. cube	0 2 3	0 3 0	

Prepared Flooring—	Per square.	
1 in. by 6 in. and 7 in. yellow, planed and shot	0 13 0	0 16 6
1 in. by 6 in. and 7 in. yellow, planed and matched	0 13 6	0 17 6
1¼ in. by 6 in. and 7 in. yellow, planed and matched	0 16 0	1 1 0
1 in. by 6 in. and 7 in. white, planed and shot	0 11 0	0 13 0
1 in. by 6 in. and 7 in. white, planed and matched	0 11 6	0 13 6
1¼ in. by 6 in. and 7 in. white, planed and matched	0 14 0	0 16 6

JOISTS, GIRDERS, &c.

	In London, or delivered to Railway Vans, per ton. £ s. d.	£ s. d.	
Rolled Steel Joists, ordinary sections	7 15 0	8 15 0	
Compound Girders ,, ,,	9 10 0	10 15 0	
Angles, Tees and Channels, ordinary sections	9 7 6	11 7 6	
Flitch Plates	9 15 0	10 10 0	
Cast Iron Columns and Stanchions, including ordinary patterns	8 5 0	10 0 0	

PRICES CURRENT (*Continued*).

METALS.

	Per ton, in London. £ s. d.	£ s. d.
IRON.—		
Common Bars	8 10 0	9 0 0
Staffordshire Crown Bars, good merchant quality	9 0 0	9 10 0
Staffordshire "Marked Bars"	11 10 0	- - -
Mild Steel Bars	9 0 0	10 0 0
Hoop Iron, basis price	9 10 0	10 0 0
,, ,, galvanised	16 0 0	- - -
(* And upwards, according to size and gauge.)		
Sheet Iron, Black.—		
Ordinary sizes to 20 g.	10 5 0	- - -
,, ,, to 24 g.	11 10 0	- - -
,, ,, to 26 g.	12 15 0	- - -
Sheet Iron, Galvanised, flat, ordinary quality.—		
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	12 15 0	- - -
,, ,, 22 g. and 24 g	13 5 0	- - -
,, ,, 26 g.	14 10 0	- - -
Sheet Iron, galvanised, flat, best quality.—		
Ordinary sizes to 20 g.	16 10 0	- - -
,, ,, 22 g. and 24 g.	17 0 0	- - -
,, ,, 26 g.	18 10 0	- - -
Galvanised Corrugated Sheets.—		
Ordinary sizes, 6 ft. to 8 ft. 20 g.	12 15 0	- - -
,, ,, 22 g. and 24 g.	13 5 0	- - -
,, ,, 26 g.	14 0 0	- - -
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	12 10 0	- - -
,, ,, 22 g. and 24 g	13 10 0	- - -
,, ,, 26 g.	14 10 0	- - -
Cut nails, 3 in. to 6 in. (Under 3 in. usual trade extras.)	10 10 0	- - -
LEAD—Sheet, English, 3 lbs. & up.	15 5 0	- - -
Pipe in coils	15 15 0	- - -
Soil Pipe	18 5 0	- - -
ZINC—Sheet—		
Vieille Montagne ton	24 10 0	- - -
Silesian	24 0 0	- - -
COPPER—		
Strong Sheet per lb	0 1 0½	- - -
Thin ,,	0 1 2	- - -
Copper nails ,,	0 1 2	- - -
BRASS—		
Strong Sheet ,,	0 0 11	- - -
Thin ,,	0 1 1	- - -
TIN—English Ingots ,,	0 1 4	- - -
SOLDER—Plumbers' ,,	0 0 7	- - -
Tinmen's ,,	0 0 8	- - -
Blowpipe ,,	0 0 9	- - -

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	3d. per ft. delivered
,, fourths	3½d. ,, ,,
21 oz. thirds	3¾d. ,, ,,
,, ,, fourths	3¾d. ,, ,,
26 oz. thirds	5d. ,, ,,
,, ,, fourths	4½d. ,, ,,
32 oz. thirds	6d. ,, ,,
,, ,, fourths	5½d. ,, ,,
Fluted sheet, 15 oz.	3½d. ,, ,,
,, ,, 21 ,,	4½d. ,, ,,
½ Hartley's Rolled Plate	3d. ,, ,,
⅜ ,, ,, ,,	3½d. ,, ,,
½ ,, ,, ,,	4d. ,, ,,

OILS, &c.

	£ s. d.
Raw Linseed Oil in pipes per gallon	0 2 6
,, ,, ,, in barrels ,,	0 2 7
,, ,, ,, in drums ,,	0 2 9
Boiled ,, ,, in pipes ,,	0 2 8
,, ,, ,, in barrels ,,	0 2 9
,, ,, ,, in drums ,,	0 2 11
Turpentine, in barrels ,,	0 2 6
,, in drums ,,	0 2 8
Genuine Ground English White Lead ...per ton	24 10 0
Red Lead, Dry ,,	24 10 0
Best Linseed Oil Putty per cwt.	0 9 0
Stockholm Tar per barrel	1 10 0

VARNISHES, &c.

	per gallon £ s. d
Fine Elastic Copal Varnish for outside work	0 16 6
Best Elastic Copal Varnish for outside work	1 0 0
Best Elastic Carriage Varnish for outside work	0 16 6
Best Hard Oak Varnish for inside work	0 10 6
Best Extra Hard Church Oak Varnish for inside work	0 10 6
Fine Hard Copal Varnish for inside work	0 16 0
Best Hard Copal Varnish for inside work	1 0 0
Best Hard Carriage Varnish for inside work	0 16 0
Extra Pale Paper Varnish	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 9 0
Berlin Black	0 15 0
Knotting	0 10 0
Best French and Brush Polish	0 10 0

TO CORRESPONDENTS.

J. F. W. and G. N. (Amounts should have been stated).

NOTE.—The responsibility of signed articles, letters, and papers read at meetings, rests, of course, with the authors.

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Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

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TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than 10 a.m. on Thursdays.* N.B.—We cannot publish tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of tenders accepted unless the amount of the tender is given, nor any list in which the lowest tender is under £100, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

AUCHTERLESS (N.B.).—For additions, &c., to steadings, Cushnie and Upperthird, Estate of Hatton, for Mr. G. A. Duff, of Hatton. Messrs. J. Duncan & Son, architects, Turriff:—

Cushnie Steading.

Masonry.—James Robb, Turriff
Carpentry.—Wm. Gall, Auchterless
Slating.—Charles Dickie, Turriff
} £328 10

Upperthird Steading.

Masonry.—Joseph Walker, Auchterless
Carpentry.—Wm. Rattray, Auchterless
Slating.—Charles Dickie, Turriff
} 227 7

BLACKBURN.—For coal-house, cart-shed, and piers at the workhouse, for the Guardians. Mr. F. C. Ruddle, architect, Union Offices, Blackburn. Quantities by the architect:—

Whittaker & Sons, Blackburn* £613

BRAY (co. Wicklow, Ireland).—For the erection of a summer residence in cement, for Professor Barrett, F.R.S. Messrs. Clare & Ross, architects, Chelmsford and London:—

A. Frazer, Bray* £577

CHELMSFORD.—For alterations to Clerk of Peace office, Chelmsford, for the Essex County Council. Mr. F. Whitmore, County Architect, Chelmsford:—

Ridgway & Sons	£3,693	Silas Parmenter	£2,498
Fincham	2,940	Coulson & Lofts	2,370
Moss & Co.	2,916	F. Johnson	2,338
F. Bennett	2,619	E. West, Chelmsford‡	2,300
H. Potter	2,500		
Davis & Leaney	2,499		

‡ Accepted at £2,050, stairs and panel work in deal.

COLEORTON.—For a new Primitive Methodist church at Coleorton near Ashby-de-la-Zouch. Mr. F. S. Antliff, architect, Draycott, near Derby. Quantities by architect:—

Moss	£1,350 10	Faulkes, Loughborough*	£1,250 0
Orton & Son	1,325 0		
Orton	1,289 0		

DISS (Norfolk).—For the erection of two villas and six cottages on Victoria-road, for Mr. J. C. Keen. Mr. Henry Geo. Bishop, architect, Cheapside, Stowmarket, Suffolk:—

E. Smith	£3,740	W. A. Wright, Diss*	£3,366
E. Death	3,575		

EALING.—For finishing and decorating four houses, Nos. 17 to 23, Drayton-avenue, West Ealing. Mr. C. Collas Robin, architect, 203, Strand, W.C.:—

Silk & Son	£278	Sumner & Kingsman*	£145
Bull & Esdaile	185		

ESHER.—For the erection of a private residence, Ember-grove, for Mr. Walter Denny. Mr. A. J. Hardwick, architect, Eagle Chambers, Kingston-on-Thames:—

E. D. Hobbs £1,005

FOXROCK (co. Dublin, Ireland).—For the erection of twelve artisans one-story cottages in concrete, for the Royal Exchange Assurance Corporation, London and Dublin. Messrs. Clare & Ross, architects, Chelmsford and London:—

W. J. Elsdon £1,680
A. Frazer, Bray, co. Wicklow* 1,600

FRAMPTON-ON-SEVERN (Gloucestershire).—For alterations and additions to Buckholdt House, for Mr. A. J. Franklin, Gloucester. Mr. Harry A. Dancey, architect, Gloucester:—

A. S. Cooke	£497 10	Bradley, Frampton*	£306 14
Orchard & Peer	395 0		

HAROLD WOOD (Essex).—For the erection of a detached house, for Mr. D. Bradshaw, on the Upper Heathfield Building Estate. Messrs. Clare & Ross, architects, Chelmsford and London:—

W. J. Coleman & Co.	£1,490	Field, Clare, & Co.	£1,280
J. Smith & Son	1,395	Dupont & Co.	1,187
S. Parmenter	1,299	H. Young, Plaistow*	1,050

HUNSTANTON (Norfolk).—For work at Florence Villa, for Mr. Alfred Jermyn. Mr. Herbert J. Green, architect and surveyor, 31, Castle Meadow, Norwich:—

A. W. Barnes	£2,504 14 2	Solden Hipwell	£1,974 0 0
W. H. Brown	2,308 9 0	Reuben Shanks	1,870 0 0
Fredk. Giddings	2,235 2 8		
Messrs. Hill & Horsley	2,068 5 7		

KEIGHLEY.—For the erection of house, stables, &c., at sanitary depot, Lawkholme-lane, for the Corporation. Mr. W. H. Hopkinson, C.E., Town Hall, Keighley:—

Masonry.—Tom Moore, Keighley	£1,068 14 5
Joinery.—Greenhow & Murgatroyd, Keighley	458 12 4½
Plumbing.—W. Newbould, Keighley	43 3 7
Slating.—W. Thornton, Bingley	220 0 0
	£1,790 10 4½

KELVEDON (Essex).—For the erection of eight cottages in concrete, for Miss Docwra. Messrs. Clare & Ross, architects, Chelmsford and London:—

Clare Bros., 38, Northwick-road, Stratford* £1,668

KINGSASH (Bucks).—For alterations at farm, for Mr. A. Lasenby Liberty. Mr. A. J. Hardwick, architect, Kingston:—

Geo. Brackley £251 10 0

KINGSWOOD.—For the erection of cottages for Mr. A. L. Liberty. Mr. A. J. Hardwick, architect, Kingston, Surrey:—

Geo. Parsons £257 5 0

LEYTON.—For shop-fittings, Binn's Stores, 178, Lea Bridge-road, Leyton. Mr. C. Collas Robin, architect, 203, Strand, W.C.:—

Bull & Esdaile ..... £63 | C. F. Thompson* £57

LEYTONSTONE.—For shop fittings, Binn's Stores 273, Leytonstone-road, Leytonstone. Mr. C. Collas Robin, architect, 203, Strand, W.C.:—

Anley & Sons	£128	Bull & Esdaile*	£95
C. F. Thompson	105		

LICHFIELD.—For the erection of school, house, &c., Borrowcop Hill, for the Grammar School Governors. Mr. T. Hillier-Pyke, architect, 61, Prestbury-road, East Ham, Essex:—

Warren	£9,484	James	£7,668
Treasure & Son	8,393	Sturgess	7,630
Gethin	8,011	Warbenton	7,517
Nicholas	8,007	Lowe & Son	7,501
Marshall	7,923	Gowing & Ingram	7,438
Harvey Gibbs	7,739	Ward & Son, Stone-road, Uttoxeter†	7,082
Dones	7,686		

† Accepted, subject to approval of the Charity Commissioners and modification.

LONDON.—For alterations and additions to Town Hall, Rosebery-avenue, for the Finsbury Borough Council. Quantities by Mr. Harley Heckford, Deputy Borough Surveyor:—

Small & Sons	£1,616	Lole & Lightfoot	£1,163
W. Gladding	1,333	Foster Bros.	1,156
W. Reason, Rosebery-avenue, E.C.*	1,179		

LONDON.—For new drainage, latrines, roadway, &c., at Stowage Wharf, Deptford, S.E., for the General Steam Navigation Company, Limited. Mr. Alfred Roberts, architect, 18, Nelson-street, Greenwich, S.E.:—

H. Groves	£2,340	W. Mills*	£1,790
J. T. Gloag	1,999	Thorn & Collins	1,475
A. Wilson	1,897		

LONDON.—For building new stores and stables at Kieselquhr Wharf, Homerton, N.E., for Messrs. A. Haacke & Co. Mr. C. Collas Robin, architect, 203, Strand, W.C.:—

W. H. Lascelles	£2,347 0	Bull & Esdaile	£2,100 0
Barrett & Power	2,215 0	Anley & Sons	2,090 0
R. E. Worsley	2,130 0	W. Shurmur	2,088 0
C. F. Thompson	2,100 10		

LONDON.—For shop fittings, 262, King-street, Hammersmith, for Mr. Harvey. Mr. C. Collas Robin, architect, 203, Strand, W.C.:—

Bull & Esdaile	£85 0	Ward & Sons	£63 5
C. F. Thompson	67 0		

LONDON.—For the erection of the Imperial Hall, Grove Vale, East Dulwich, S.E., for the Syndicate. Mr. J. W. Brooker, architect, 13, Railway Approach, London Bridge:—

H. J. Williams	£9,195	W. Downs	£8,743
Edwards & Medway	9,179	Parker	8,725
Colls & Sons	9,140	Marks	8,307
G. J. Kick	8,887	Kent	8,131
Bywaters	8,856	F. H. Hopkins*	7,881

LUTON.—For the erection of children's homes, Dunstable-road, for the Guardians. Mr. B. B. Franklin, architect, 21, Market-hill, Luton:—

Saunders & Son	£3,440 0 0	Phillips & Blake	£2,900 0 0
D. Parkins	3,186 0 0	G.W. Dunham, Guildford-st., Luton*	2,883 0 0
E. Foster	2,985 17 9	J. W. Smith	2,877 0 0
Mallett & Wood	2,973 0 0		

NORTHWOOD.—For the erection of private residence for Mr. J. Llewellyn. Mr. A. J. Hardwick, architect, Kingston:—

Hill Bros. £1,681 6 0

NOTTINGHAM.—For the erection of a pair of villas, Shirley-road, Carrington, Notts. Mr. Fred. C. Martin, architect, Angel-row, Nottingham:—

Wm. Maule £1,123

PENTRE (Glam.).—For the erection of the Hope English Baptist Chapel, Gelli, Rhondda Valley, for the Building Committee. Mr. W. D. Morgan, architect, Bailey-street, Ton, Pentre, R S.O.:—

Morgan Bros., Ton, Pentre, R.S.O., Rhondda Valley* £745

See also next page.

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Forms of Tender, &c., Supplied by	Tenders to be delivered
Twenty-one Cottages	Rathdown (Ireland) R.D.C.	R. M. Butler, Architect, Dawson-street, Dublin	May 23
Flooring, &c.	Rochdale Corporation	S. S. Platt, Civil Engineer, Town Hall, Rochdale	do.
Additions to the Royal Belfast Institution, Belfast	Governors	Blackwood & Jury, Architects, 41, Donegall-place, Belfast	do.
Paving Works, Church Bank	Sowerby Bridge U.D.C.	R. W. Evans, Commercial Bank Chambers, Halifax	do.
*Road Making and Paving Works	Willesden District Council	Engineer, Public Offices, Dyne-road, Kilburn, N.W.	do.
*Railings and Gates	Wandsworth & Clapham Guardns.	C. A. Sharp, Architect, 11, Old Queen-st., Queen Anne's Gate, S.W.	May 29
Granite Road Metal (1,165 tons)	Thame (Oxon) U.D.C.	H. Howland, Surveyor, 33, Chinnor-road, Thame	do.
Chapel	Rathdown Union Guardians	P. F. Comber, Civil Engineer, 19, Lower Leeson-street, Dublin	do.
Additions to House, Botanic Park Gardens	Belfast Corporation	City Surveyor, Town Hall, Belfast	do.
Additions to Workhouse	Barrow-in-Furness Guardians	J. Y. McIntosh, Architect, Cornwallis-street, Barrow	do.
Restoration of Chapel, Llwynmawr, Glyn Ceiriog	North Dublin R.D.C.	H. Evans, Glanryfon, Pontfadog, Ruabon	do.
Fourteen Cottages	Erdington U.D.C.	J. O'Neill, North Brunswick	do.
School, Framlingham, Suffolk	Islington Guardians	Brown & Burgess, Architects, Princess-street Chambers, Ipswich	do.
Road Works, &c., Deykin-avenue	Hampstead Borough Council	H. H. Humphries, Engineer, Public Hall, Erdington, Birmingham	do.
*Painting, &c.	Rev. J. M'Glinchey	Guardians' School, Hornsey-road, N.	May 30
*Wood Paving, &c.	Mr. J. Bowden	Borough Surveyor, Town Hall, Haverstock Hill, N.W.	do.
Parochial House, Donemana, Ireland	Brighton Borough Council	E. J. Toye, Architect, Strand, Londonderry	do.
Two Residences, Wyke, Bradford, Yorks	Stirlingshire County Council	Brayshaw & Dixon, Architects, Bowling Old-lane, Bradford	do.
Two Shops, &c., Croft-road, Neath	Edenderry (Ireland) R.D.C.	J. C. Rees, Architect, Neath	do.
*Portland Cement	Braidwood (N.B.) Town Council	Borough Engineer, Town Hall, Brighton	May 31
Reservoir, &c., Milton		Warren & Stuart, Civil Engineers, 94, Hope-street, Glasgow	do.
Labourers' Cottages		— Waters, Civil Engineer, Edenderry	do.
Cattle House, Gear, Zennor, Cornwall		T. & J. Laity, Retaliack, Marazion	do.
Cast-iron Pipes, &c		Warren & Stuart, Civil Engineers, 94, Hope-street, Glasgow	do.
Art Gallery, Newcastle		Cackett & Dick, Archts., 24, Grainger-st. West, Newcastle-on-Tyne	do.
House, near Darvel, Hamilton, N.B.		W. L. Balmer, 84, Quarry-street, Hamilton	do.
Hall, Clough, co. Down		Blackwood & Jury, Architects, 41, Donegall-place, Belfast	do.
Surveyor's Materials	Little Woolton U.D.C.	R. Simmons, Surveyor, Grange-lane, Gatacre, near Liverpool	do.
Pumping Station Buildings	Newcastle-on-Tyne Corporation	C. Hopkinson, Engineer, 29, Princess-street, Manchester	do.
Bank Premises, York-street, Belfast	Ulster Bank, Limited	Lepper & Fennell, Architects, 33, Waring-street, Belfast	do.
Gymnasium, Abertillery		F. E. Bates, Architect, 26, Westgate-chambers, Newport, Mon.	do.
Two Cottages, Corntown, near Cornwood, Devon		Oldrieve & Kingston, Bridgetown, Totnes	June 1
Additions to National Schools, Hayling Island		H. F. Trigg, Architect, South Hayling	do.
Granite Road Metal (500 tons)	Saffron Walden Corporation	A. H. Forbes, Borough Surveyor, Town Hall, Saffron Walden	do.
*Paving Blocks	St. Marylebone Borough Council	Borough Surveyor, Town Hall, Marylebone-lane, W.	June 3
School Buildings, Denbigh		J. Hughes, Architect, Denbigh	do.
Bridge Works, Broughton-road	Salford Corporation	C. S. Allott & Sons, Civil Engineers, 46, Brown-street, Manchester	do.
Workshop, &c., Mount Pleasant	Swansea Corporation	W. James, Grammar School, Swansea	do.
Additions to School, Pontygof	Bedwellty School Board	C. Dauncey, Castle-street, Tredegar	do.
Electrical Engineering Works, Stafford	Messrs. Siemens Bros. & Co., Ltd.	Siemens & Co., Ltd., Woolwich	do.
Dwellings, &c., Penlee Point, Cawsand, Cornwall	Trinity House Corporation	E. G. Verity, 31, Golden-square, W.	do.
School, Linden-road	Gloucester School Board	M. H. Medland, Architect, 15, Clarence-street, Gloucester	do.
*Sewers	Billericay R.D.C.	Bailey Denton, Son, & Lawford, 9, Bridge-street, Westminster	do.
Teacher's House	Stratford-on-Avon School Board	T. T. Allen, Architect, Stratford-on-Avon	June 4
Additions, &c., to Public House, Winchester	Messrs. Welsh & Company, Ltd.	T. Stopher, Architect, 57, High-street, Winchester	do.
Electric Lighting Buildings	Aldershot U.D.C.	N. F. Dennis, Civil Engineer, Council Offices, Aldershot	do.
*Underground Lavatories	Hove Corporation	Borough Surveyor, Town Hall, Hove	June 6
*Sewer Works	do.	do	do.
Conduits, Drains, &c.	Melton Mowbray U.D.C.	Baldwin Latham, Parliament Mansions, Victoria-street, S.W.	do.
Waterworks, &c.	Cheadle R.D.C.	F. T. Inskip, Surveyor, Brookhouse, Cheadle	June 6
*Generating Station	Uxbridge Station Supply Co., Ltd.	Secretary's Office, 1, Vine-street, Uxbridge	June 8
*Water Tower, &c.	Rochford R.D.C.	J. Mansergh, Engineer, 5, Victoria-street, Westminster	June 10
*Hospital	Shardlow Hospital Committee	F. S. Antliff, Architect, Draycott	June 12
Electricity Buildings	Exeter Town Council	D. Cameron, City Engineer, Exeter	June 14
*School	Dagenham School Board	Harrington & Ley, 65, Bishopsgate-street, Without	June 19
Warehouse, Leeds	Messrs. Crowe & Company, Ltd.	Corson & Co, Architects 25, Cookridge-street, Leeds	No date
House, Longtown, Carlisle	Rev. J. Gilfillan	T. T. Scott, Architect, 43, Lowther-street, Carlisle	do.
Additions, &c., to the Garland Hotel, Parkeston	Messrs. Nicholl & Co.	J. W. Start, Architect, Colchester	do.
School, Eyre-street, Pendleton, Lancs		Moulds & Porritt, Architects, 77, Kings-street, Manchester	do.
House, Piddletrouthide, Dorset	Abersychan Indus. Co-op. Soc. Ltd.	J. Dibbens, Glyde Path-road, Dorchester	do.
Hall, &c.	Mr. T. E. Yorke	Swash & Bain, Archts., Midland Bank Chambers, Newport, Mon.	do.
Works at Farm, Gouthwaite, Yorks	Harrowgate Corporation	Bland & Brown, Architects, Harrogate	do.
Caretaker's House, Scargill	Mr. J. H. Brown	do.	do.
House, Langcliffe Avenue, Harrogate		A. A. Gibson, Architect, 5, Prospect-crescent, Harrogate	do.
Alterations to Rother Cottage, Rotherham	Messrs. Greene, King & Co., Ltd.	G. H. Johnson, Architect, 33, High-street, Rotherham	do.
Additions to the Castle Inn, Bury St. Edmunds	Messrs. Aylmer & Coghill	A. A. Hunt, Architect, 51, Abbeygate-street, Bury St. Edmunds	do.
Additions to the Red House and Tally Ho, Cork		A. Hill, Architect, 22, George's-street, Cork	do.
Villa, Ellesmere, Salop	Gateshead School Board	J. Foster, Brownlow-road, Ellesmere, Salop	do.
Schools, Sunderland-road		F. W. Purser, Architect, West-street, Gateshead	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
*Building Inspector	Coventry Corporation	130*l.* per annum	May 30
*Assistants (2)	Hendon R.D.C.	2*l.* each per week	June 5
*Manager	Sheffield Corporation		do.
*County Surveyor	Northampton County Council	350*l.* per annum	June 7
*Clerk of Works	Worthing School Board		No date

Those marked with an asterisk (*) are advertised in this Number. *Competitions, p.* — *Contracts, pp.* iv. vi. viii. x. & xxiii. *Public Appointments, pp.* xxi. & xxiii.

SHIMPLING (Norfolk).—For the erection of four cottages for Mr. J. C. Keen. Mr. Henry Geo. Bishop, architect, Stowmarket, Suffolk :—

J. Wade, Long Stratton* £550

SOUTHMINSTER (Essex).—For the erection of a house for Mr. H. J. Summers :—

A. Downing, Southminster* £454

THAKEHAM (Sussex).—For the erection of a police-station, for the West Sussex County Council. Mr. W. B. Purser, C.E., 31, Bedford-road, Horsham. Quantities by Mr. C. H. Burntow, architect, Horsham :—

W. Wallis	£655 0 0	H. Murrell, Roffey, Horsham*	£611 0 0
Geo. Gillam	653 5 3		

THAMES DITTON.—For the erection of a cottage shop for Colonel Walter Campbell. Mr. A. J. Hardwick, architect, Kingston-on-Thames :—

T. Adkins £594 7 0

WESTCLIFFE-ON-SEA.—For the erection of a pair of villas on the Beach Estate. Messrs. Clare & Ross, architects, Chelmsford and London :—

Young & Co., Plaistow, E.* £820

WIMBLEDON PARK.—For the erection of a detached house. Messrs. Clare & Ross, architects, Chelmsford :—

W. & C. Brown, Clapham (tender on amended plans)* £1,110

LONDON SCHOOL BOARD TENDERS.

At the last meeting of the London School Board, the Works Committee submitted the following lists of tenders. Mr. T. J. Bailey is the Board's Architect :—

BALTIC-STREET SCHOOL, BARBICAN.—Sanitary work :—

Williams & Son	£262 0	Johnson & Co.	£209 0
Stevens Bros.	210 10	Marchant & Hirst†	129 0

BEETHOVEN-STREET SCHOOL, QUEEN'S PARK.—For sanitary and drainage works :—

Godson & Sons	£1,453 0 0	G. Neal	£1,152 0 0
Killingback & Co.	1,396 0 0	R. P. Beattie	1,120 19 3
W. Hammond	1,282 0 0	John Peattie†	899 0 0

BEETHOVEN-STREET SCHOOL, QUEEN'S PARK.—Works in infants' department already sanctioned :—

G. H. Sealy	£850	0	0	General Builders, Limited	£577 0 0
W. Hammond	780	0	0	S. Polden	548 0 0
G. Neal	628	0	0	Marchant & Hirst	529 10 0
Stevens Bros.	617	0	0	F. T. Chinchen†	485 16 5
W. R. & A. Hide	596	15	0		

BERGER-ROAD SCHOOL, HOMERTON (for special school, &c.).—The Board on April 5, 1900, on the recommendation of the School Management Committee, instructed the Works Committee to provide a School for Special Instruction in connexion with the Berger-road School, Homerton, consisting of four classrooms for twenty children each, with provision for enlargement, should a fifth room be needed hereafter :—

Grover & Son	£6,102	W. Shurmur	£5,661
Killby & Gayford	6,096	W. Downs	5,656
W. M. Dabbs	6,090	C. Cox	5,655
Munday & Sons	5,849	Lawrance & Sons	5,598
Leslie & Co., Ltd.	5,836	Treasure & Son	5,216
L. H. & R. Roberts	5,735	T. L. Green	5,187
C. Wall	5,707	Chessum & Sons†	4,915

BLOOMFIELD-ROAD SCHOOL, PLUMSTEAD.—Special rooms :—

H. Groves	£1,229	G. Kemp†	£1,133

BOSTALL-LANE SITE, PLUMSTEAD.—A school on the site in Bostall-lane, Plumstead (Sub-division S of Greenwich), to provide accommodation for 1,006 children. The school is a three-story building, and contains the following accommodation :—Halls—boys and girls each, 58 ft. by 33 ft. 10 in.; infants, 57 ft. 3 in. by 33 ft 6 in. Classrooms—boys and girls each, 56, 60, 48, 56, 56, 48 ; infants, 48, 60, 48, 56, 56, 50. Drawing-classroom, 1,276 square feet area. Heating by low-pressure hot-water apparatus. Area of site, 87,120 square feet. Playgrounds area per child—boys, 120 square feet ; girls and infants, 58 square feet. A schoolkeeper's house is also included in the plans :—

		‡
J. & M. Patrick	£30,435	+ £211
Johnson & Co., Ltd.	30,278	+ 208
Gough & Co.	29,688	+ 287
Lathey Bros.	29,575	+ 342
Munday & Sons	29,118	+ 265
Smith & Sons, Ltd.	29,104	+ 181
Garrett & Son	28,861	+ 330
Grover & Son	28,853	+ 230
Kirk & Randall	28,817	+ 304
Lawrance & Sons	28,171	+ 212
Treasure & Son	27,770	+ 83
W. Downs, Hampton-street, Walworth-road†	27,481	+ 217

‡ If walls of classrooms and halls be plastered, *add*.

CATHERINE-STREET SCHOOL, HOXTON.—For re-constructing boiler flue :—

General Builders, Ltd.	£249 0	Marchant & Hirst	£139 0
Johnson & Co.	209 10	F. & F. J. Wood	139 0
Rockhill Bros.	140 10	Stevens Bros., Yonge Park, N.†	129 0

CHEQUER-STREET SCHOOL, ST. LUKE'S.—For new offices, &c. :—

Marchant & Hirst	£440 0	Peattie Bros.	£380 0
Johnson & Co.	429 0	Barrett & Power†	342 0
Stevens Bros.	399 10		

COOKS-GROUND SCHOOL, CHELSEA.—For additional heating surface :—

W. G. Cannon	£145	Vaughan & Brown, Ltd.	£84
G. Davis	96	Palowkar & Sons	79
J. Gray‡	91	Knight & Sons†	74
Stevens & Sons	90		

‡ If work done after working hours, £94.

HILLDROP-ROAD SITE, CAMDEN-ROAD.—With the consent of the Board of Education, the Board have acquired a site in Hilldrop-road, Camden-road (Sub-division BA[1] of Finsbury) ; and on March 7, 1901, the Board, on the recommendation of the School Management Committee, instructed the Works Committee to erect on this site a Pupil Teachers' School for the Marylebone Division, at an estimated cost of £8,484. The plans of the school, which are a duplicate of those of the school now being erected on the Offord-road site, Barnsbury, and will contain the same accommodation, viz., for 312 pupil teachers, were passed by the Committee on March 11 last. The following is a description of the plans :—Ground floor and first floor—Classrooms, 42, 42, 36, 36. Hall on ground floor, 50 ft. 6 in. by 33 ft. 6 in. Gymnasium on first floor, 50 ft. 6 in. by 33 ft. 6 in., with dressing-room. Second floor—drawing-classroom, 1,675 ft. area ; modelling room, 405 ft. area ; chemical laboratory for thirty-two students, physical laboratory, lecture-room, store for chemicals, and dark room. School to be built on arches, thus forming covered playgrounds for male and female students. A kitchen, boiler-room, and coal store are also included in the plans :—

Killby & Gayford	£23,255	Spencer, Santo, & Co.	£22,498
Allen & Sons	22,975	Lawrance & Sons	22,142
L. H. & R. Roberts	22,866	T. L. Green	21,987
Leslie & Co., Ltd.	22,863	Gough & Co.	21,874
J. & M. Patrick	22,732	Treasure & Son	21,730
C. Wall	22,545	Gregar & Son†	20,933
Williams & Son	22,515		
C. Cox	22,512		

LAVENDER HILL SCHOOL.—For new drawing-classroom, modelling room, &c. :—

F. & H. F. Higgs	£1,697	Holliday & Greenwood, Ltd.	£1,524
Johnson & Co., Ltd.	1,608	Lorden & Son	1,477
W. Downs	1,602	J. & C. Bowyer	1,329
Garrett & Son	1,578	E. Triggs	1,322
Bulled & Co.	1,567	J. Appleby	1,278
J. & M. Patrick	1,558	Smith & Son†	1,270
Holloway Bros.	1,557		
Lathey Bros.	1,557		

LILLIE-ROAD SCHOOL, FULHAM.—For cloak-room, &c., for backward children :—

Mitson & Co.	£220	J. & W. T. Hunter†	£135
Hawkins & Co.	158		

MANCHESTER-STREET SCHOOL, GRAY'S INN-ROAD.—For heating works :—

Kite & Co.	£698	Knight & Sons	£625
J. Esson	666	G. Davis	565
J. Grundy	653	G. & E. Bradley, Elfort-rd., Drayton Park, N.†	555
Comyn, Ching, & Co.	649		

NEW SCHOOL in MANDEVILLE-STREET, CLAPTON.—For heating apparatus :—

J. & F. May	£790	Brightside Foundry & Engineering Co., Ltd.	£607
Cannon & Sons	769	Duffield & Sons	586
J. Grundy	698	Defries & Sons, Ltd.	534
Williams & Sons, Ltd.	698	The Lighting Corporation, Ltd., 4, Bloomsbury-street†	458
Wenham & Waters, Ltd.	696		
Oldroyd & Co., Ltd.	696		
Wontner-Smith, Gray, & Co.	660		

OXFORD-GARDENS SCHOOL, NOTTING HILL.—For heating apparatus :—

J. Gray	£724	G. Davis	£520
J. & F. May	630	J. C. Christie	465
Wippell Bros. & Row	625	Duffield & Sons	439
J. Grundy	589	Seward & Co.†	398
Harlow & Son	577		

PROSPECT-TERRACE SCHOOL, GRAY'S INN-ROAD—For improvements to heating apparatus :—

Brightside Foundry and Engineering Co., Ltd.	£217 0	Wontner Smith, Gray, & Co.	£145 0
J. Esson	210 10	G. & E. Bradley	143 0
C. Kite & Co.	195 0	G. Davis	125 0
J. & F. May	167 0	Duffield & Sons	120 0
		Wenham & Waters, Ltd.†	111 0

ROSEBERY-AVENUE SCHOOL, GRAY'S INN-ROAD, AND BERNER-STREET SCHOOL, ST. GEORGE'S-IN-THE-EAST.—For covered playgrounds for infants :—

(A) Finsbury—Rosebery-avenue School.

Johnson & Co.	£269 0	Staines & Son	£218 0
T. L. Green	237 0	Stevens Bros.	202 0
Williams & Son	219 0	W. R. & A. Hide†	195 18

(B) Tower Hamlets—Berner-street School.

Johnson & Co.	£259	G. Barker	£215
A. E. Symes	257	J. T. Robey	200
J. F. Holliday	219	J. & F. J. Wood†	198

RUTLAND-STREET SCHOOL, MILE END OLD TOWN.—Fitting up house, No. 29, Sidney-square, for housewifery centre :—

Gibb & Co.	£92	J. F. Holliday	£80
A. W. Derby	80	G. Barker†	72

SUMNER-AVENUE PUPIL TEACHERS' SCHOOL, PECKHAM.—Heating works :—

Brightside Foundry and Engineering Co., Ltd.	£195 0	W. Simmons	£126 0
G. & E. Bradley	150 0	Wontner Smith, Gray, & Co.	120 0
W. G. Cannon	133 0	Morris & Co.	120 0
		Palowkar & Sons†	114 14

SURREY-SQUARE SCHOOL, OLD KENT-ROAD.—For sanitary and drainage works :—

	Estimate, including re-using existing doors and framework.	Additional sum required if new joinery be supplied.	
Martin, Wells, & Co.	£2,891 0	£166 0 0	£3,057 0 0
Maxwell Bros., Ltd.	2,548 17	169 16 8	2,718 13 8
W. V. Goad	2,468 0	183 0 0	2,651 0 0
G. Parker	2,440 0	150 0 0	2,590 0 0
W. Downs	2,389 0	143 0 0	2,532 0 0
J. & C. Bowyer	2,354 0	140 0 0	2,494 0 0
Johnson & Co.	2,310 0	145 0 0	2,455 0 0
Falkner & Sons, Old Kent-road, S.E.†	2,313 0	126 0 0	2,439 0 0

WEST-HILL SITE (late Broomhill-road), **WANDSWORTH.**—The Board of Education have sanctioned the erection of a school on the West-hill site (late Broomhill-road), Wandsworth (Sub-Division CA of West Lambeth), to provide accommodation for 900 children, upon which site three temporary iron buildings have been now erected and are now in use. The provision of cookery, laundry, and housewifery centres to form a complete domestic economy school, a school for special instruction to provide accommodation for forty children and a manual centre for forty boys, has also been sanctioned in connexion with this school. Finished plans of a school to accommodate 966 children (viz., boys, girls, and infants 322 each department), together with the special school, domestic economy school, and manual centre (to be erected as separate buildings), were passed by the Committee on February 12, 1900. The school is a three-story building, and contains the following accommodation :—Halls—boys', girls', and infants' departments, each, 54 ft. 6 in. by 32 ft. 6 in. Classrooms—boys' and girls', each, 42, 48, 56, 56, 60, 60 ; infants', 40, 50, 56, 56, 60, 60. Special rooms—Drawing classroom, 1,178 ft. area ; manual training centre for forty boys ; domestic economy school ; special school for forty children. Schoolkeeper's house. Heating by low-pressure hot-water apparatus and open fires. Area of site, 87,120 sq. ft. Playgrounds, area per child—boys', 97 ft. ; girls' and infants', 50 ft. :—

W. Downs	£34,825	Stimpson & Co.	£30,430
C. Wall	34,710	J. & M. Patrick	30,009
Holloway Bros.	34,450	Martin, Wells, & Co.	29,555
Johnson & Co., Ltd.	34,171	Smith & Son, Harleyford-road, S.E.†	29,497
Parsons & Co.	33,707		
Lawrance & Sons	32,265		
Lorden & Son	31,888		
Spencer, Santo, & Co., Ltd.	31,063		

WICKHAM-LANE SITE, PLUMSTEAD.—The Board of Education have also sanctioned the erection of a school for 600 children on the site which has been acquired in Wickham-lane, Plumstead (Sub-division S of Greenwich). Finished plans of a school to provide accommodation for this number of places (viz., boys, girls, and infants 200 each) were passed by the Committee on January 28. The school is a three-story building, and contains the following accommodation :—Halls—boys', girls', and infants', each 54 ft. by 31 ft. 3 in. Classrooms—boys', girls', and infants', each 56, 56, 48, 40 ; also drawing-classroom, 1,050 ft. area. Heating by low-pressure hot-water apparatus and open fires. Area of site, 54,450 square feet. Playgrounds, area per child—boys', about 102 ft. ; girls' and infants', about 60 ft. A schoolkeeper's house is also included in the plans :—

J. & M. Patrick	£23,431	Lawrance & Sons	£21,788
Garrett & Son	22,334	Perry & Co.	21,695
W. Downs	22,296	Treasure & Son	21,234
Chessum & Sons	22,283	Kirk & Randall†	20,440
F. & H. F. Higgs	21,971		

WINSTANLEY-ROAD SCHOOL, BATTERSEA. For heating works :—

Brightside Foundry and Engineering Co., Ltd.	£619 0 0	Paragon Heating Co.	£458 0 0
Wippell Bros. & Row	596 0 0	Bates & Sons	445 0 0
Dougill & Co., Ltd.	568 18 0	Wontner-Smith, Gray & Co.	434 0 0
G. Davis	550 0 0	Duffield & Sons.	425 0 0
Wenham & Waters, Ltd.	511 0 0	Defries & Sons, Ltd.	390 0 0
Cannon & Sons	499 0 0	The Lighting Corporation, Ltd.†	274 14 6

WOOD'S-ROAD SCHOOL, PECKHAM.—This school is one of those in connexion with which it is proposed to provide halls and to carry out other improvements, under the scheme adopted by the Board on March 17, 1898. Finished plans of the improvements provide for a hall for each department, 53 ft. by 30 ft., with drawing-classroom over ; new cloakrooms, teachers' room, stock rooms, and lavatories ; dividing large classrooms and restepping five existing classrooms on each floor ; providing basement for heating apparatus ; enclosing, draining, and tar-paving the additional land ; retaining and adapting old house for the schoolkeeper, and removing existing and erecting new covered playground for boys and girls and new water-closets for boys. The above alterations will result in a reduction of 150 places in the total accommodation of the school (viz., boys, 24 ; girls, 24 ; infants, 102), as the accommodation of the old rooms, the seating of which will be altered, will now be calculated on the seat basis. The revised accommodation, on the completion of the improvements, will be—boys, 456 ; girls, 456 ; infants, 536. Total, 1,448 :—

Marsland & Sons	£15,278	Holliday & Greenwood, Ltd.	£13,596
T. L. Green	14,993	Johnson & Co., Ltd.	13,499
Kirk & Randall	14,639	W. Downs	13,120
Lawrance & Sons	14,036	Smith & Son	13,015
F. & H. F. Higgs	13,762	Stimpson & Co.† Brompton-rd., S.W.	12,600
J. & C. Bowyer	13,727		

Tenders for the supply of belts for the use of schoolkeepers when cleaning windows :—

	For 96 belts delivered at one time. Each. s. d.		For further supplies of 12 belts at a time. Each. s. d.
Shand, Mason, & Co.	5 0	..	5 6
Merryweather & Sons, Ltd.†	7 6	..	7 9
J. H. Heathman & Co.	13 4	..	13 4
Do. (alternative)	7 6	..	7 6

Painting, &c.

The exteriors of the following schools will be painted between May 25 and June 22, 1900 :—

ARTHUR-STREET :—

Martin, Wells, & Co.	£217	H. Line	£164
Rice & Son	175	J. C. Chalkley	148
J. F. Ford	173	Smith & Son*	131
King & Son	165		

BLUNDELL-STREET :—

C. & W. Hunnings	£375 0	Stevens Bros.	£281 0
G. Barker	326 10	Wall & Co.	231 0
G. Kirby	316 0	Marchant & Hirst*	218 0

CALVERT-ROAD :—

W. J. Howie	£175 10 0	J. & C. Bowyer	£164 0 0
H. Groves	173 0 0	Hayter & Son	158 0 0
W. Banks	168 17 6	E. Proctor*	140 0 0
J. Appleby	167 0 0		

CAMDEN-STREET :—

Balfour & Co.	£280 10 0	Bristow & Eatwell	£187 11 0
C. & W. Hunnings	247 0 0	W. Chappell*	178 10 0
T. Cruwys	220 0 0	Marchant & Hirst	175 0 0
F. T. Chichec	198 10 0		
Antill & Co.	190 0 0		

CATHERINE-STREET :—

T. Cruwys	£258 0	G. Barker	£152 0
W. Shurmur	174 0	Barrett & Power*	138 0
Silk & Son	171 0	J. Haydon	134 10

GIFFORD-STREET :—

G. Barker	£658	Stevens Bros.	£598
C. & W. Hunnings	650	Wall & Co.	477
Collis Willmott	650	Marchant & Hirst*	450
G. Kirby	634		

[*See also next page.*

For carrying out repairs on schedule in various groups.—The following are the particulars of the Tenders showing the percentage required by the contractors to be added to the printed schedule of prices, together with the percentage previously added :—

Name of Contractor.	City.	Finsbury.		Hackney.			Southwark.		Tower Hamlets.			
		Group 1.	Group 2.	Group 4.	Group 5.	Group 6.	Group 1.	Group 2.	Group 4.	Group 5.	Group 6.	Group 7.
H. Line	15	20	20	...	...	...	15	*15	...	...	...	...
Barrett & Power	25	25	25	27½	27½	27½	...	...	...	...	...	...
Lathey Bros.	17½	17½	17½	...	...	...	...	...	...	...	...	...
Marsland & Sons	...	...	...	...	...	...	30	15	...	...	...	...
G. Wales	...	...	...	*25	25	25	...	...	...	...	...	...
J. Appleby	...	...	...	...	...	...	40	40	...	...	...	...
T. L. Green	...	18½	...	...	...	...	...	...	...	...	...	...
H. Groves	...	...	...	...	...	...	50	50	...	...	...	...
Johnson & Co.	*15	*15	*15	25	25	*25	15	15	20	20	*20	*20
A. E. Symes	...	...	...	...	...	...	...	...	*17½	*20	25	25
J. Haydon	...	...	...	25	*25	25	...	...	...	...	...	...
Gibb & Co.	...	...	...	...	...	...	...	...	25	25	25	25
Clarke & Bracey	35	35	35	...	...	...	...	...	...	...	...	...
J. F. Holliday	...	...	...	...	...	...	†25	†25	†25	†25	†25	†25
Rice & Son	...	...	...	...	...	...	‡25	‡25	...	...	...	...
M. Pearson	20	20	20	...	...	...	...	...	...	...	...	...
Sayer & Son	...	...	...	...	...	...	25	17	...	...	...	...
G. Brittain	...	...	...	...	...	...	*11	11	...	...	...	...
W. V. Goad	...	...	...	...	...	...	27½	22½	...	...	...	...
Maxwell Bros., Ltd.	...	...	...	...	...	...	20	20	...	...	...	...

† This contractor requires an extra 12½ per cent. for sanitary works.
‡ These contractors require 33⅓ per cent. for sanitary works.
The Works Committee recommend the acceptance of the Tender marked with an asterisk (*) in each case.

GILL-STREET :—

T. H. Jackson	£298	J. T. Robey	£141
A. W. Derby	193	Gibb & Co.	129
Corfield & Co.	168	J. Haydon*	126

LAXON-STREET :—

H. Line	£320 0	Sayer & Son	£223 10
Garrett & Son	262 0	Johnson & Co.	218 0
Maxwell Bros., Ld.	228 5	H. J. Williams*	210 0

RICARDO-STREET :—

T. H. Jackson	£218	J. T. Robey	£154
A. W. Derby	173	J. F. Holliday	152
Corfield & Co.	154	Gibb & Co.*	139

ROCKINGHAM-STREET :—

Gregory & Co.	£255 0 0	G. Kemp	£187 0 0
W. V. Goad	221 0 0	H. J. Williams	187 0 0
Sayer & Son	220 10 0	Johnson & Co.*	184 0 0
G. Brittain	195 15 0		

STANLEY-STREET :—

S. E. Musgrove	£234	H. Groves	£185 0
J. & C. Bowyer	212	G. Kemp	175 0
Hayter & Son	190	E. Proctor*	125 0

TOWER-STREET :—

Thompson & Beveridge	£215 0	Bristow & Eatwell	£127 5
C. Gurling	166 0	W. Hornett	125 10
Lathey Bros.	166 0	M. Pearson	120 0
		S. Polden*	113 5

UPPER NORTH-STREET :—

T. H. Jackson	£206	Gibb & Co.	£133
A. E. Symes	162	J. F. Holliday	131
A. W. Derby	150	Heard & Co.	125
J. T. Robey	137	J. Haydon*	114

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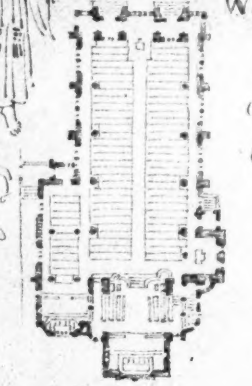

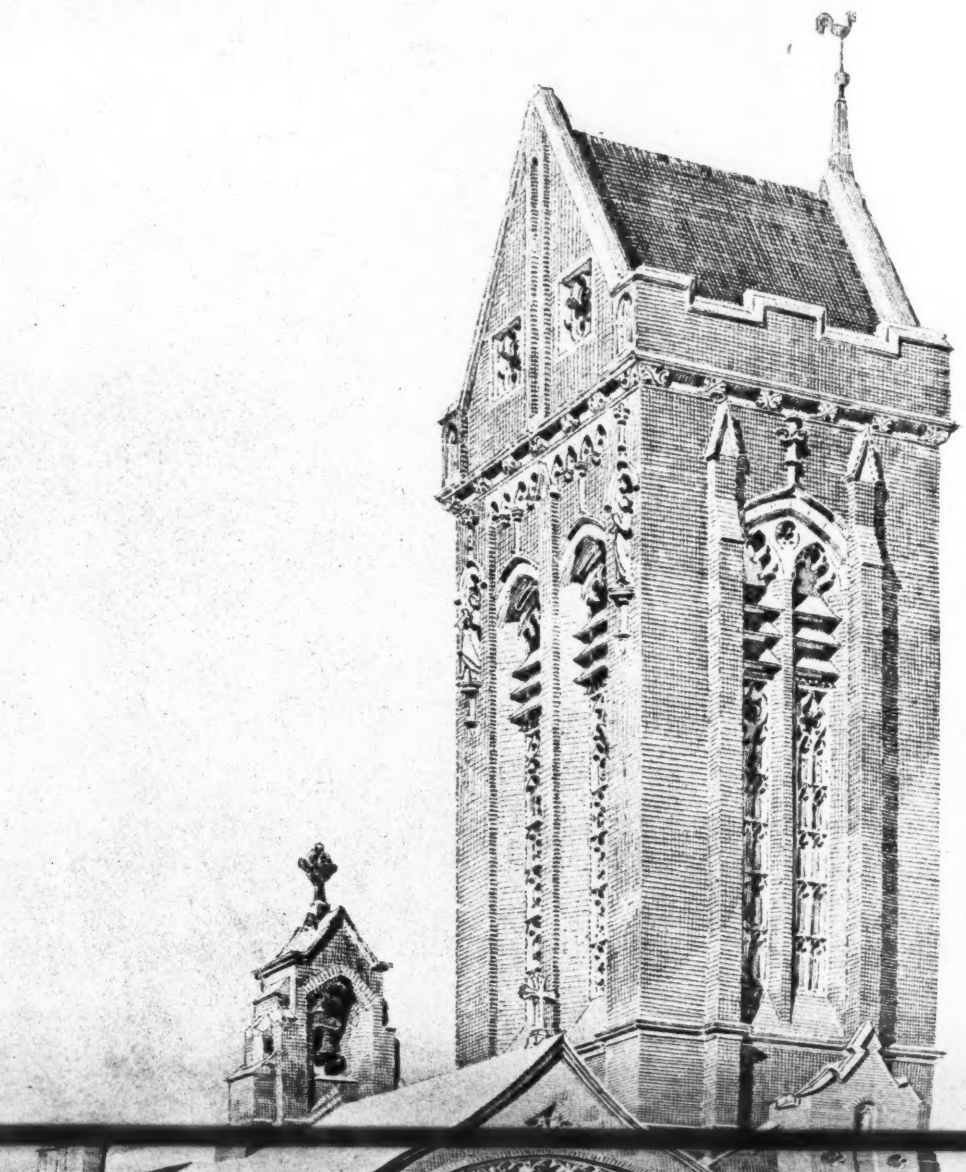

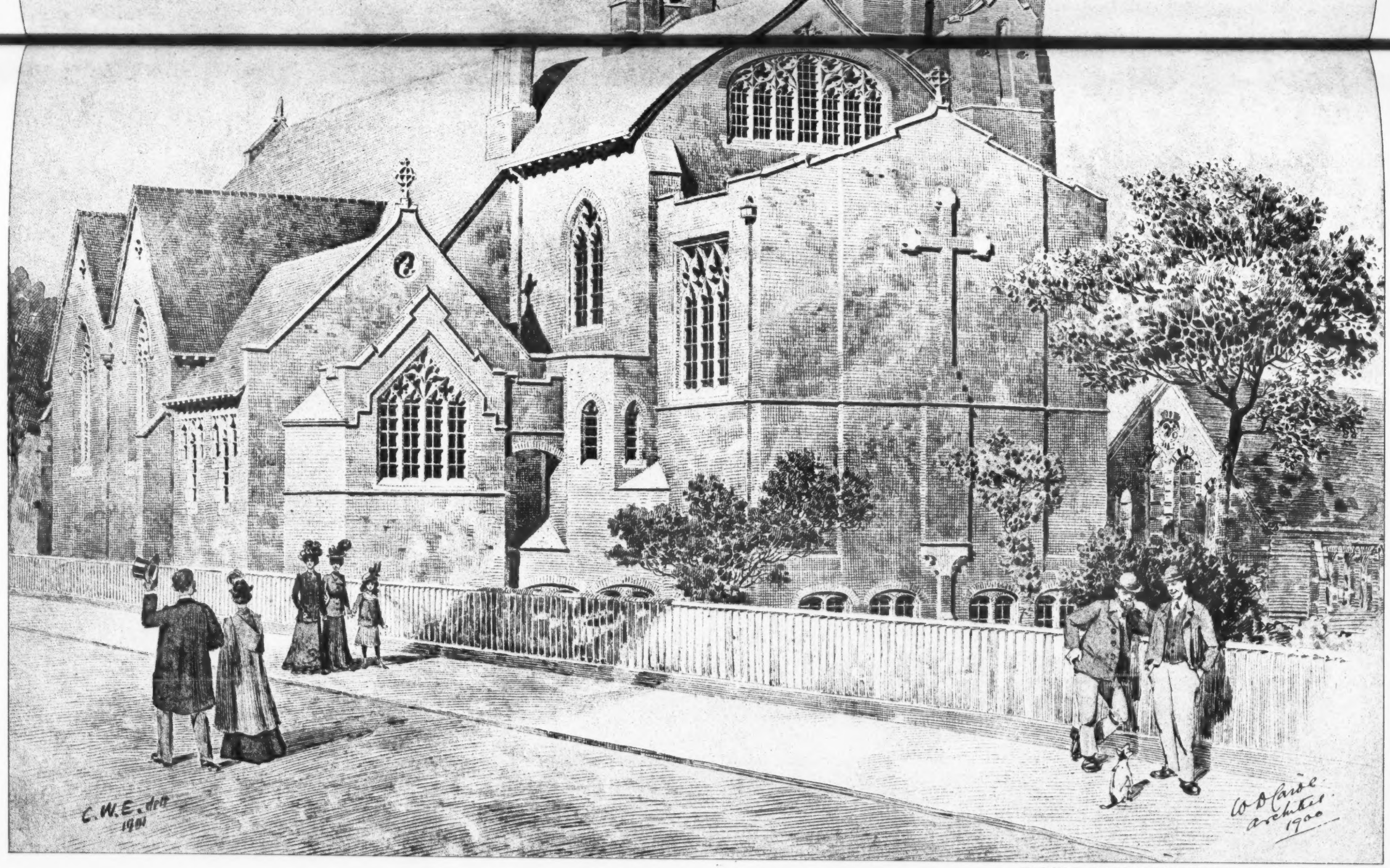

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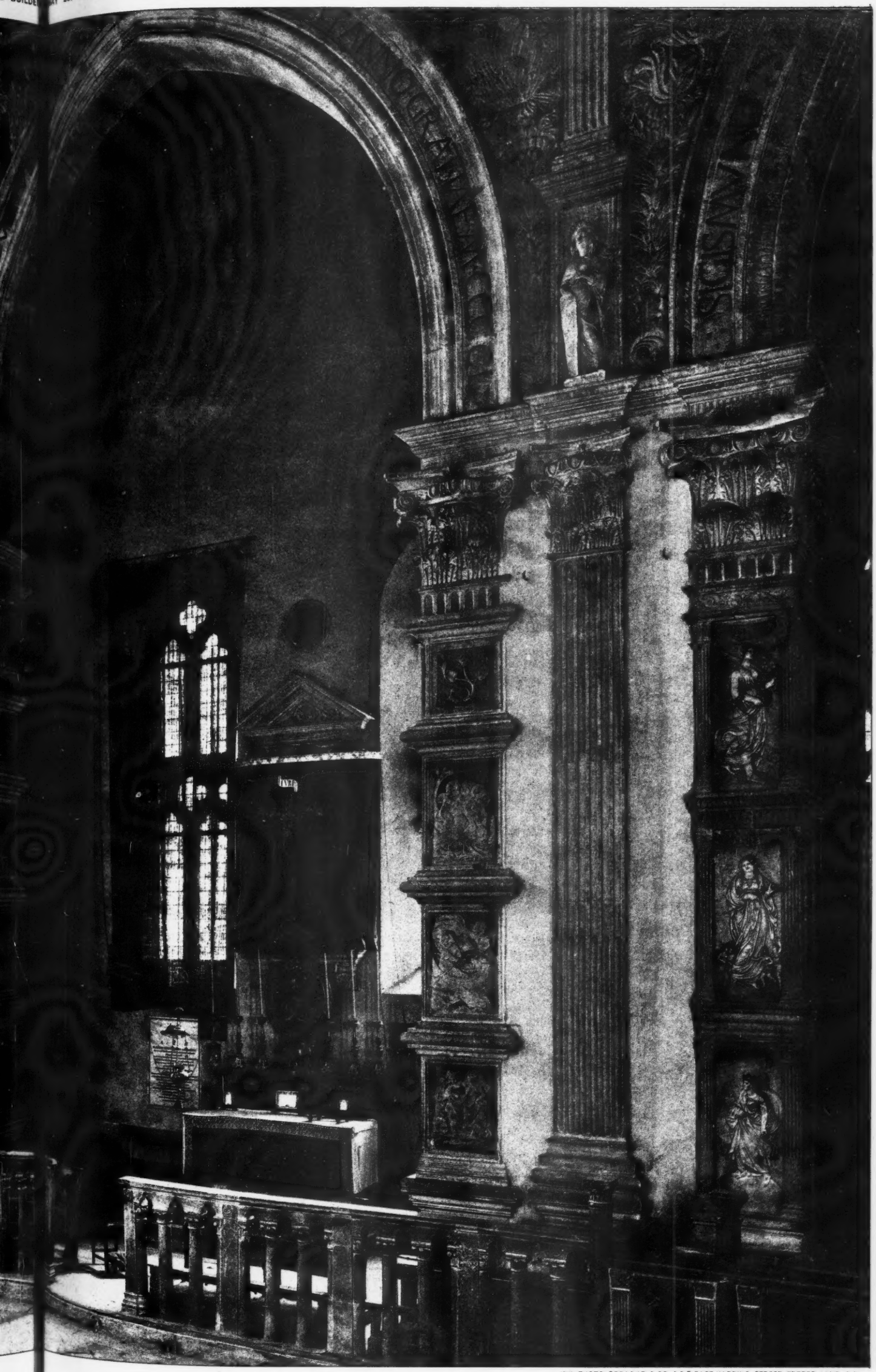

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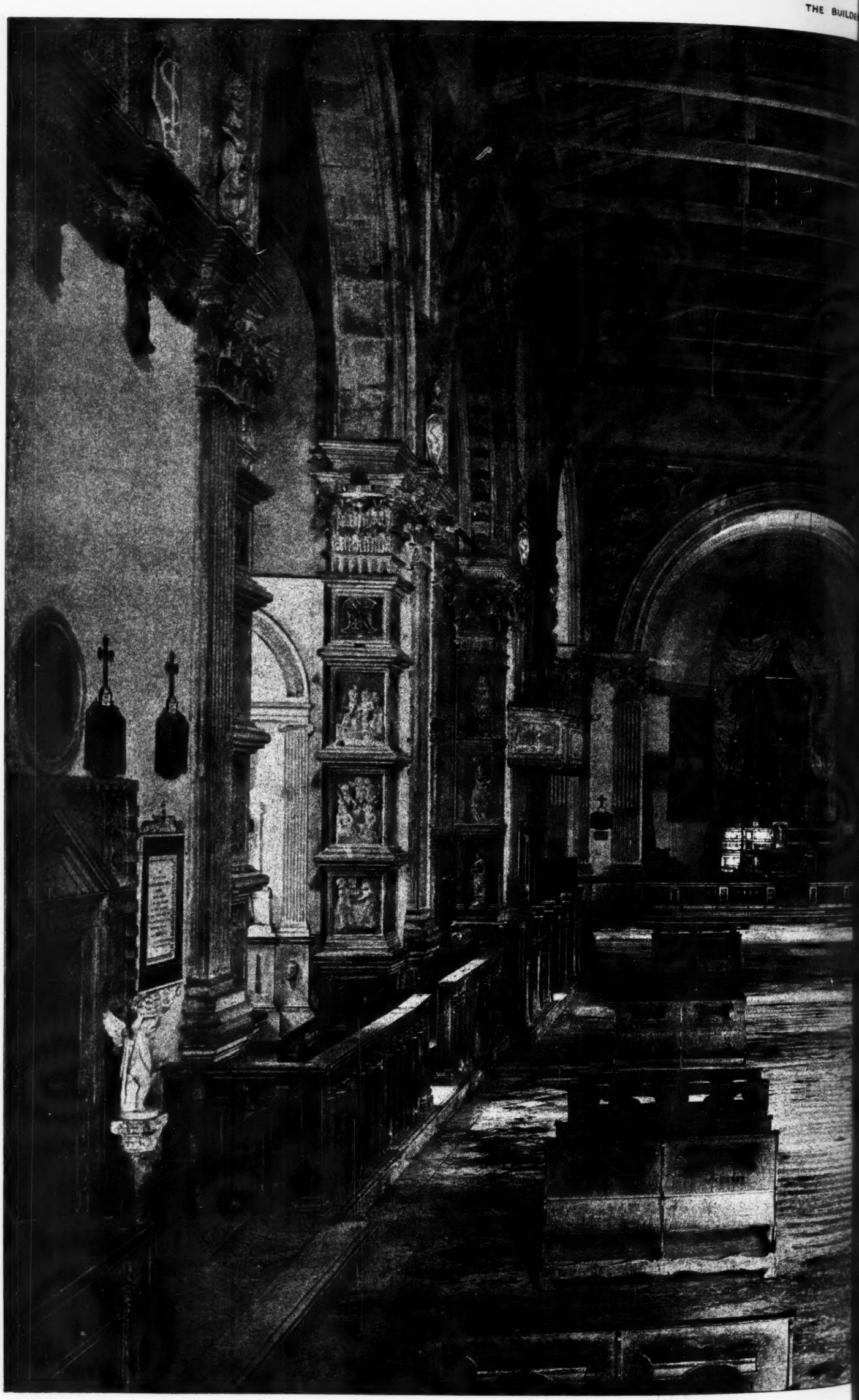

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